ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE

COUNTY BOROUGH OF CARDIFF,

FOR THE YEAR 1902.

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D.P.H. Camb., Fellow of the Sanitary Institute
Medical Officer of Health.

Printed by Order of the Sanitary Authority.

CARDIFF:
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1903.

COUNTY BOROUGH OF CARDIFF.

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*Cert. of San. Inst.

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Cardiff Urban Sanitary Authority.

TOWN HALL,
CARDIFF,
May, 1903.

TO THE CHAIRMAN AND MEMBERS OF THE
CARDIFF URBAN SANITARY AUTHORITY.

GENTLEMEN,

I have the honour of submitting to you my Report for the year 1902, made in accordance with the Local Government Board's Order of March, 1891, which specifies the formation to be contained in the Annual Reports of Medical Officers of Health.

A Memorandum, issued by the Board's Medical Officer, dated October, 1901, directs that—"the Report should be chiefly concerned with the conditions affecting health in the "district and with the means of improving those conditions. It should contain an account, "brought up to the end of the year under review, of the Sanitary circumstances of the district, "and of any improvement or deterioration which may have occurred during the year in those "circumstances. Care should be taken to report fully and explicitly on the influences affecting "or threatening to affect injuriously the public health in the district, and on the action which "has been taken, or which may still be needed, with a view to combat those influences. It is of "especial importance that the Medical Officer of Health should record what action has been "taken to remedy unhealthy conditions which have been reported by him in previous Annual "Reports, or in special reports presented during the year under review, and that attention "should be called afresh year by year to such as remain unremedied."

The Report will, therefore, contain information relating to the following subjects:—

(1) Physical features, general character, meteorology and vital statistics of the district.

(2) House accommodation, especially for the working classes: Its adequacy and fitness. Sufficiency of open space about houses, and cleanliness of surroundings.

(3) Sewerage and drainage: Its sufficiency in all parts of the district.

(4) Removal and disposal of house refuse.

(5) Water supply of the district: Sufficiency, wholesomeness, and freedom from risks of pollution.

(6) Places over which the Council have supervision, *e.g.*, Lodging-houses, Slaughter-houses, Bakehouses, Dairies, Cowsheds and Milkshops, Factories and Workshops, and offensive trades.

(7) Nuisances: Proceedings for their abatement.

(8) Methods of dealing with Infectious Diseases: Notification; Isolation Hospital accommodation and disinfection.

The general health of a district is so intimately connected with the character of the soil upon which the houses are built, that a short description of the more important physical features of this locality may not be out of place in this report. Amongst the diseases which appear to be closely associated with the composition of the soil may be mentioned Phthisis, Enteric Fever and Diarrhœa, the prevalence of which seems to bear some relation to the permeability of the ground, the variations in the level of the subsoil water, and to the nature and amount of the impurities present in the ground air and water. The following information is derived from a memoir of the Geological Survey of England and Wales, recently issued, descriptive of the geology of the South Wales Coalfield and of the country around Cardiff. Part of the town of Cardiff is built upon alluvial land at a very slight elevation above the ordinary sea level near the mouths of three Rivers, the Rhymney, the Taff and the Ely. The Rhymney and the Ely at the points at which they enter the Bristol Channel, forming respectively the Eastern and Western limits of the Borough. The Taff flowing in a Southerly direction forms a natural division of the town into East and West, each having a separate drainage system.

The older geological formations of the district include the Silurian, the Old Red Sandstone, and the Carboniferous Limestone Rocks, the more recent strata belonging to the Trias and Lias formations. The superficial deposits consists of glacial drift, alluvium estuarine mud and river gravels. A small exposure of the Wenlock and Ludlow beds of the Silurian formation is seen in the banks of the Rhymney River close to the bridge on the Newport Road, and a more extensive one in a quarry about a quarter of a mile from the bridge. The area of the Old Red Sandstone lies to the North of the town, being exposed on the Rhymney Railway cutting near Llanishen Station. This formation is chiefly of interest from the fact that the present magnificent water supply to the Cardiff District is derived from the Old Red Sandstone of the Brecon Beacons, the summits of which are about 3,000 feet above the sea, at a distance of 35 miles from Cardiff.

The Carboniferous Limestone which forms the basin upon which lies the South Wales Coalfields is exposed on the hills to the North of Cardiff, the only exposure actually within the town is that of the Flat Holm Island, in the parish of St. Mary. The Trias formation is represented by the Keuper or New Red Marl, which is the most prominent feature in the geology of this locality resting on the Old Red Sandstone at Newport, the Silurian rocks at Cardiff, and the Carboniferous Limestones in the districts further West. The Rhaetic and Lias beds lie above the Keuper, being exposed to view in the Penarth Cliffs. Upon the impervious New Red Marl rest the more superficial deposits consisting of River Gravel, apparently the product of the Taff and Rhymney Rivers, and composed of materials of the Glacial Drift bordering their valleys. The gravel is saturated with water, which in former times, with disastrous results, formed the principal source of drinking water supplied to the town.

This water, at all times subject to extensive pollution from animal organic refuse matter derived from a large urban population, was largely responsible for the high mortality from enteric fever and diarrhœa which was formerly a characteristic of the vital statistics of the town. The extensive epidemics of Asiatic cholera in the years 1837, 1854, and 1863, were also attributed to the polluted water supply from the gravel.

The Gravel Terrace on the East of the River Taff forms the building land on which a greater part of that side of the town is built, and is certainly a more suitable soil for buildings than the low-lying alluvial and estuarine mud flats in the neighbourhood of the Docks, South Splott and Grangetown.

The River Gravel continues beneath these alluvial and mud deposits which form the foreshore and land near the Docks. Its seaward margin is marked by a gentle rise in the ground from about 22 feet to 30 feet above Ordnance Datum and by a change of soil from mud to coarse gravel.

This margin can be traced by Splott to the River Rhymney and thence back by Pengam and Roath along the Pen-y-lan Road, its northern margin being in Cathays to the South of the

Cemetery and Barracks. A gradual rise in the gravel takes place towards the north, so as to attain a level of nearly 40 feet above Ordnance Datum in Queen Street and the Newport Road, and 50 feet at Cathays, where it is deposited to a depth varying from 8 to 20 feet and rests on the New Red Marl. The part of the town situated on the West of the River Taff is in the Northern or Canton district, on an alluvial deposit of clay, sand and gravel, the Southern or Grangetown Ward being on the estuarine mud—a stiff blue clay of tidal origin. This low-lying part of the town is now protected from the sea and tidal waters by banks, but an exceptionally high tide has even in recent years inundated some of the lower parts of it. In some parts of the town the ground has been raised by the deposit of made soil composed of ashes and house refuse collected in scavenging operations. This has formed a convenient method of disposing of this refuse, usually a difficult matter in large towns, and an economical way of raising the level of the land. Some difference of opinion exists as to the advisability of this method of refuse disposal, having regard to the possible danger to the health of the community living in the immediate neighbourhood of the deposits. It has not been possible to show any direct injury to health even where this soil has been built upon, but it cannot be regarded as free from the danger at all times likely to arise from an extensive pollution of the ground air and water under dwellings.

It has been found also that drain pipes laid in this soil are extremely liable to dislocation from the subsidence of the ground, and that corrosion and injury to iron and lead water pipes has been caused by the active chemical changes occurring during the decomposition of the refuse.

To the possible danger to health arising from the pollution of the ground is added therefore the real and more serious danger of contamination of the drinking water by the insuction of impurities through holes in the damaged pipes. The question of building on such soils does not at present arise, as the adoption of a recent Act of Parliament by the Sanitary Authority has removed the possibility of so doing, and by a resolution of the Authority passed some time ago it was decided to discontinue using this material in the construction of new roads. It is therefore very desirable that the arrangements now in contemplation for burning the house refuse in "Destructors" should be completed without delay.

The Municipal Borough of Cardiff originally comprised the Parishes of St. John the Baptist and St. Mary the Virgin. Under the provisions of the Cardiff Improvement Act of 1875, the Boundary of the Borough was extended so as to include the Parish of Roath and that part of the Parish of Llandaff known as Canton.

The County Borough of Cardiff comprises 6,373 acres of land and inland water exclusive of foreshore and tidal water. This area is distributed in the Registration Sub-districts as follows:—East Cardiff 481 acres, Central Cardiff 3,832, and West Cardiff 2060 acres. The Borough is divided into Ten Municipal Wards and contains the civil parishes of Canton, Roath, St. John and St. Mary.

The population of the Borough according to the revised census enumeration of 1901, amounted to 164,333, being an increase of 27·5 per cent. since the census of 1891. According to the census returns, amongst the towns with a population exceeding 120,000, two only, namely West Ham and Croydon, increased at a greater rate during that period.

The returns for Cardiff show a diminished rate of increase as compared with that of the intercensal period ending 1891, the population in that year being given as 128,915, which was equal to an increase of 55 per cent. since the census of 1881. The population of the Borough in the middle of the year 1902, estimated in accordance with the method adopted by the Registrar General, was 168,909. This estimate is based on the assumption that the same rate of annual increase has continued as during the ten years ending 1901. In order to check to some extent the accuracy of this estimate a local enumeration, based on the number of inhabited houses, is made annually in June under the superintendance of the Medical Officer of Health. This number is multiplied by the average number of inmates per house as given at the last census, *i.e.*, 5·8. This

method gave a population of 171,633 for the middle of the year 1902, being 2,724 above the estimate of the Registrar-General. On this occasion the number of inhabited houses was found to be 29,592.

The census returns for April, 1901, give the number of inhabited houses in the Borough as 27,971, and in April of 1891, as 20,476.

As a necessary consequence of the method adopted by the Registrar-General for the estimation of populations, the death rates published in his reports for Cardiff since the census of 1891 was considerably lower than the true rates, this error being more marked towards the end of the intercensal period and depending upon the annually increasing error in the estimates of the population. The extent of this error is shown in Table X., giving the corrected rates based on the revised estimates of population which I have made since the publication of the census of 1901. It should be mentioned that the relative position of Cardiff with respect to its mortality was not materially affected by this over estimate of population, as similar errors occurred in the estimates in most of the large towns.

It is probable that the annual estimates of population of Cardiff based on the census of 1901 will be much more accurate than those immediately preceding that year, as they are calculated on the more moderate rate of increase of 27·5 per cent.

The statistical tables in the appendix of this Report, forms for which are supplied by the Local Government Board, are the same as those issued last year, but differ considerably from those previously used. Four tables have, at the suggestion of the Incorporated Society of Medical Officers of Health, been substituted for Tables A and B, previously in use. Table I. supplies statistics for the ten previous years for the purpose of comparison. Table II. gives the births and deaths distributed among the localities to which they belong and the corresponding figures in previous years. An indication is thus afforded of the effect of the varying conditions of different localities upon the mortality, either from all causes or from some particular disease or class of disease. Table III. provides for the number of notified cases of infectious disease during the year, classified according to ages of patients and localities, and also the number of cases removed to hospital from each locality. Table IV. gives in a condensed form the particulars given in the more extended table of the causes of death during the year according to sex and age. Where necessary, and as far as possible, the tables of vital statistics in this Report relating to the years intermediate between 1891 and 1901 have been revised in the light of the numbers enumerated in the last Census.

The following tables, taken from the Census Report of 1901, give the distribution of the population in the Municipal Wards, Civil Parishes and Registration Sub-Districts, as compared with the previous Census of 1891 :—

CENSUS, 1901.

TABLE I.—Inhabited Houses and Population enumerated in 1891 and 1901, in the County Borough of Cardiff :—

	Area in Acres, Land and Inland Water.	Inhabited Houses.		Population.		Increase or Decrease of Population between 1891 and 1901.	
		1891	1901	1891	1901	Increase.	Decrease.
County Borough of Cardiff	6373	20,476	27,971	128,915	164,333	35,418	—

TABLE II.

Inhabited Houses and Population in Registration Sub-Districts enumerated in 1891 and 1901 :—

Registration Sub-Districts.	Area in Statute Acres, Land and Inland Water.	Inhabited Houses.		Enumerated Population.		Increase or Decrease of Population between 1891 and 1901.	
		1891	1901	1891	1901	Increase.	Decrease.
East Cardiff ...	481	5,838	9,297	35,294	52,585	17,291	—
Central Cardiff ...	3,832	8,102	8,835	53,824	54,316	492	—
West Cardiff ...	2,060	6,536	9,843	39,797	57,432	17,635	—

TABLE III.

COUNTY BOROUGH OF CARDIFF.

Civil Parishes and Wards.	HOUSES.				POPULATION.		
	Inhabited.	Uninhabited.		Building.	Persons.	Males.	Females.
		In Occupation.	Not in Occupation.				
Cardiff C.B. ...	27,971	1,105	1,872	157	164,383	81,605	82,728
Civil Parishes—							
Canton	7,582	121	670	22	43,256	21,215	22,041
Roath	10,789	149	451	98	61,022	30,132	30,890
St. John	5,069	384	377	23	29,704	13,872	15,832
St. Mary	4,531	451	374	14	30,351	16,386	13,965
Wards—							
Adamsdown ...	2,067	34	94	12	14,188	7,902	6,286
Canton	3,676	48	374	21	19,727	9,516	10,211
Cathays	3,280	31	210	5	18,522	9,257	9,256
Central	1,858	556	217	20	11,286	5,428	5,858
Grangetown ...	3,236	34	217	2	20,584	10,272	10,312
Park	4,047	74	167	28	21,124	9,886	11,238
Riverside	2,931	70	175	9	17,121	8,168	8,953
Roath	2,495	51	176	24	14,605	6,801	7,804
South	1,629	174	126	2	10,320	5,653	4,667
Splott	2,752	33	116	34	16,856	8,722	8,134

Cardiff is well provided with Parks and Open Spaces forming admirable recreation grounds and breathing spaces for the inhabitants of the crowded parts of the town. Those places which belong to the public and are under the control of the Cardiff Corporation, comprise a total area of nearly 300 acres as follows:—

	Acreage, Exclusive of Roads.		
	Ac.	R.	P.
Roath Park (part of)	100	0	0
Victoria Park	19	2	36
Canton Park	12	0	0
Loudoun Square	1	1	36
Howard Gardens	1	0	36
Adamsdown Square	0	1	32
Plasturton Gardens	0	2	39
Despenser ,, ...	0	3	23
Clare ,, ...	0	0	36½
Moorland ,, ...	1	2	5½
Grangetown ,, ...	3	0	31
Llanbleddian ,, ...	0	0	37
Ruthin ,, ...	0	0	28
Senghenydd ,, (North)	0	1	7
,, ,, (South)	0	0	12
Windsor Esplanade Gardens ...	0	1	18
Roath Village Green	0	0	27
Roath Open Space	3	0	0
Splott Recreation Ground	18	0	0
Llandaff Fields	70	3	2
Cathays Park	60	0	0
Total ...	294	2	6

In addition to the above named Open Spaces the public has through the generosity of the owners, free access to the following Parks and Fields.

	A.	R.	P.
Sophia Gardens	41	3	0
Sir David's Field	9	0	0
Cardiff Arms Park	21	2	0

TABLE IV.

COUNTY BOROUGH OF CARDIFF.

* Density of Population.

Year.	Persons per Acre.
1893	21·3
1894	21·8
1895	22·4
1896	22·9
1897	23·5
1898	24·1
1899	24·7
1900	25·3
1901	25·9
1902	26·5

* Calculated on the basis of the revised populations, and on area of 6,373 acres.

TABLE V.—Births, Deaths, and Natural Increase of Population for Fifty-eight years, 1845—1902.

Year.	Population.	Births.	Deaths.	Excess of Deaths over Births.	Excess of Births over Deaths.
1845	13,385	320	324	4	...
1846	14,212	381	321	...	60
1847	15,039	331	484	153	...
1848	15,866	428	579	151	...
1849	16,693	466	864	395	...
1850	17,520	504	485	...	19
1851	18,354	575	585	...	50
1852	19,724	696	620	...	76
1853	21,094	865	644	...	221
1854	22,464	950	925	...	25
1855	23,834	1,079	641	...	438
1856	25,204	1,227	772	...	455
1857	26,574	1,367	883	...	484
1858	27,944	1,356	753	...	603
1859	29,314	1,336	826	...	510
1860	30,684	1,346	662	...	584
1861	32,054	1,223	837	...	386
1862	32,804	1,267	695	...	373
1863	33,552	1,302	862	...	440
1864	34,300	1,369	932	...	467
1865	35,048	1,382	867	...	515
1866	35,796	1,331	882	...	449
1867	36,544	1,397	873	...	524
1868	37,292	1,387	843	...	544
1869	38,640	1,414	1,005	...	409
1870	38,788	1,406	903	...	503
1871	39,356	1,391	891	...	500
1872	40,284	1,358	916	...	442
1873	41,032	1,430	995	...	435
1874	41,780	1,550	985	...	665
*1875	69,850	2,716	1,547	...	1,169
1876	72,438	2,707	1,455	...	1,252
1877	75,026	2,772	1,475	...	1,297
1878	77,614	2,795	1,468	...	1,327
1879	80,202	2,969	1,428	...	1,541
1880	82,790	2,893	1,634	...	1,295
1881	85,378	3,145	1,556	...	1,598
1882	88,603	3,399	1,724	...	1,675
1883	91,204	3,526	1,807	...	1,719
1884	93,468	3,920	2,250	...	1,670
1885	97,034	4,164	2,487	...	1,683
1886	100,736	4,270	2,269	...	2,001
1887	104,580	4,277	2,280	...	1,997
1888	108,570	4,409	2,212	...	2,197
1889	112,712	4,361	2,190	...	2,172
1890	117,012	4,600	2,469	...	2,131
1891	130,283	4,739	2,873	...	1,866
†1892	132,895	4,776	2,560	...	2,216
1893	136,168	5,110	2,794	...	2,316
1894	139,519	5,100	2,415	...	2,685
1895	142,958	5,321	2,840	...	2,481
1896	146,479	5,591	2,795	...	2,796
1897	150,087	5,279	2,534	...	2,745
1898	153,783	5,520	2,627	...	2,893
1899	157,414	5,309	2,858	...	2,451
1900	161,452	5,198	2,667	...	2,531
1901	165,308	5,206	2,596	...	2,610
1902	168,909	5,278	2,821	...	2,413

* Canton and Roath taken into the Borough.

† Populations since 1892 have been revised in accordance with Census Returns, 1901.

The following Table gives the Population of Cardiff at various ages in the County Borough, estimated to the middle of 1902.

TABLE VI.

AGES.	PERSONS.	MALES.	FEMALES.
All Ages	168,909	83,877	85,032
Under 5 years	22,632	11,115	11,517
5 and under 10 years	19,917	9,630	10,287
10 ,, 15 ,, ...	17,720	8,556	9,164
15 ,, 20 ,, ...	16,423	8,029	8,394
20 ,, 25 ,, ...	17,462	8,499	8,963
25 ,, 30 ,, ...	16,269	8,193	8,076
30 ,, 35 ,, ...	13,640	7,113	6,527
35 ,, 40 ,, ...	11,300	5,949	5,351
40 ,, 45 ,, ...	9,061	4,758	4,303
45 ,, 50 ,, ...	7,317	3,842	3,475
50 ,, 55 ,, ...	5,687	2,836	2,851
55 ,, 60 ,, ...	3,876	1,942	1,934
60 ,, 65 ,, ...	3,338	1,545	1,793
65 ,, 70 ,, ...	1,954	906	1,048
70 ,, 75 ,, ...	1,301	551	750
75 ,, 80 ,, ...	628	262	366
80 years and upwards	384	151	233

TABLE VII.

MARRIAGES.—The number of Marriages registered during the year 1902 was 1,677, corresponding to a rate of 19·8 persons married per 1,000 persons living.

A return of the number of Marriages in the Borough of Cardiff during the years 1892—1902, together with the rate of persons married per 1,000 of the population, is given below :—

Year.	Number of Marriages.	Rate per 1,000 persons living.
1892	1,526	22·9
1893	1,447	21·2
1894	1,480	21·2
1895	1,271	17·7
1896	1,721	23·4
1897	1,687	22·4
1898	1,525	19·8
1899	1,719	21·8
1900	1,706	21·1
1901	1,641	19·8
1902	1,677	19·8

BIRTHS.—During the year 1902 the Births registered in the Borough were 5,278; of these 2,657 were males and 2,621 were females.

The number corresponded to an annual birth-rate of 31·2 per 1,000 persons living, as compared with 28·6, the birth-rate in England and Wales, and with 30·0, the birth-rate in the 76 large towns for the same period.

Table IX. shows the birth-rate in Cardiff, as compared with that in some of the large towns during the past ten years, from which it will be seen that the birth-rate in Cardiff was comparatively high.

The average annual birth-rate in Cardiff during the ten years 1892—1901 was 35·2 per 1,000.

TABLE VIII. shows the number of legitimate and illegitimate births, male and female, and the number of deaths amongst children under one year of age in each Ward and in the Union Workhouse during the year 1902 :—

WARDS.	Legitimate.		Illegitimate.		Total.		Total.	Deaths Under One Year.
	M.	F.	M.	F.	M.	F		
Central Ward ...	118	149	4	5	122	154	276	43
South ,, ...	141	124	2	4	143	128	271	45
Cathays ,, ...	347	316	1	8	348	324	672	81
Park ,, ...	328	327	1	2	329	329	658	85
Adamsdown ,, ...	193	206	5	1	198	207	405	62
Riverside ,, ...	185	202	4	1	189	203	392	44
Canton ,, ..	365	357	8	3	373	360	733	105
Roath ,, ...	193	200	1	3	194	203	397	58
Grangetown ,, ..	391	358	5	2	396	360	756	122
Splott ,, ...	320	315	1	3	321	318	639	98
Union Workhouse ...	5	6	39	29	44	35	79	27
TOTAL	2,586	2,560	71	61	2,657	2,621	5,278	770

TABLE IX.—Annual Birth-rate in Cardiff compared with that in some of the large towns during the ten years ending 1902 :—

LARGE TOWNS.	Annual Birth-rate per 1,000 living.									
	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
London	31·0	30.1	30·5	30·2	30·0	29·5	29·4	28·6	29·0	28·5
West Ham	35·6	34·0	34.3	32·6	32·2	30·6	29·7	28·6	35·2	34·1
Croydon	26.2	25·0	25.3	25·1	25·0	25·4	25·1	24·9	26·4	26·1
Brighton	25·4	25·8	25·6	24·7	24·7	24·8	24·9	23·6	24·2	24·3
Portsmouth	28·2	27·6	27·9	27·6	26·9	26·7	26·2	25·7	27·9	27·1
Plymouth	29·9	28·8	28·7	28·8	28·5	29·7	29·8	28·4	26·8	27·0
Bristol	30·4	28·2	28·9	27·6	27·8	28·6	29·2	27·8	27·0	27·5
Swansea	35·1	32·3	33·4	30·5	29·4	28·9	27·7	26·7	30·1	31·1
Wolverhampton..	34·5	34·1	35·4	34·4	35·1	35·8	35·3	33·5	31·7	31·6
Birmingham	32·7	31·7	32·4	32·6	33·3	34.0	34·3	32·7	32·1	31·8
Norwich	30·9	29·8	31·8	30·8	30·5	29·9	29·1	28·4	28·4	27·9
Leicester	32·6	31·5	30·8	30·8	30·6	29·6	29·4	28·2	29·0	29.1
Nottingham	30·2	28·6	29·7	28·9	28·9	28·9	28·9	27·7	28·4	27·8
Derby	32·2	29·3	29·1	28·0	27·1	27·4	28·1	26·9	27·8	28·0
Birkenhead	33·1	30·6	30·7	31·7	31·6	30·4	29·9	29·0	29·0	32·7
Liverpool	36·0	35·4	36·9	34·9	35·3	35·2	35·6	36·0	32·1	22·5
Bolton	33·1	31·5	32·9	31·3	32·5	30·9	29·9	34.7	27·5	27·2
Manchester	33·6	32·0	33·7	33·0	33·2	32·7	32·6	32·3	29·1	32·5
Salford	34·7	34·3	35·9	34·9	35.1	34·7	33·9	33·1	29·2	33·8
Oldham	28·6	27·2	27·5	27·2	26·1	25·3	24·8	24·1	24·6	26·1
Burnley	33·9	32·2	32·1	31·0	29·8	27·1	25·3	25·3	27·4	29·1
Blackburn	30·9	28·8	30·6	27·7	27·7	27·1	27·0	25·1	26·5	25·6
Preston	35·1	32·1	33·4	32·6	31·9	31·0	30·1	29·0	30·4	28·9
Huddersfield	23·8	20·2	21.7	20·5	23·4	22·5	23·0	22·8	22·7	24·4
Halifax	24·6	23·1	23·4	24·3	22·5	22·9	23·1	23·1	22·5	21·3
Bradford	27·7	26·7	26·1	25·5	24·6	24·0	23·4	23·1	23·1	23·0
Leeds	32·4	32·2	31·6	30·7	31·6	31·2	30·6	30·4	30·0	29·8
Sheffield	34·8	33·4	34·9	34·0	34·4	33·9	34·6	34·2	33·0	33·4
Hull... ...	34·2	32·4	34·2	31·9	33·3	33·4	34·3	32·9	33.0	32·1
Sunderland	35·6	35·1	35·1	34·2	34·6	35·4	35·7	35·8	35·5	35·9
Gateshead	36·5	34·2	34·6	35·8	35·8	35·5	36·6	36·3	36·8	36·7
Newcastle-on-Tyne ...	33·7	31·0	31·2	31·1	31·3	31·7	31·4	30·4	32·1	32·6
Cardiff	**37·5**	**36·5**	**37·1**	**38·1**	**35·1**	**35·9**	**33·7**	**35·2**	**31·4**	**31·2**

DEATHS.—The deaths recorded during the year 1902 amounted to 2,865. So far as it has been possible to obtain information, this number includes the deaths of persons resident in Cardiff, and who died in Public Institutions elsewhere, but is exclusive of those brought into the district from outside and dying in Public Institutions within the Borough.

These deaths were equal to an annual death-rate of 16·9 per 1,000 persons living.

The " natural increase " of the population, or the excess of births over deaths, amounted to 2,413.

Notwithstanding the revised estimate of the population, made in accordance with the census of 1901, the death-rate remains one of the lowest amongst the large towns, and corresponds very closely with the average rate for the whole of England and Wales, *i.e.*, 16·3 per 1,000.

From the Tables in the Appendix to this Report it will be seen that this low rate of mortality has been maintained during the past three years, viz. : 16·5 in 1900, 16·0 in 1901, and 16·9 in 1902, and that during the ten years 1892—1901 the average death-rate was 17·9 per 1,000.

According to the returns of the Registrar-General the death-rates in the 76 large towns of England and Wales ranged from 8·6 per 1,000 in Hornsey, 10·9 in Handsworth, 11·5 in Walthamstow, to 20·6 in Wigan, 22·5 in Liverpool, and 23·1 in Merthyr-Tydfil.

In the first quarter of the year 735 deaths were registered from all causes in the Borough of Cardiff, corresponding to an annual death-rate of 17·4 per 1,000 as compared with 19·9, the average rate in the 76 large towns. Sixty-one deaths were ascribed to the principal infectious diseases, giving a death-rate of 1·44 per 1,000. The average rate from these diseases in the 76 large towns was 1·92 per 1,000 for the same period. The infant mortality was equal to 154 deaths of infants under one year of age to 1,000 births registered. In the large towns this proportion ranged from 82 in Hornsey to 223 in Merthyr-Tydfil. Of the 61 deaths from the principal infectious diseases 34 were due to diphtheria, 13 to scarlet fever, 11 to whooping cough, 2 to measles, and 1 to diarrhœa.

In the second quarter 636 deaths were registered from all causes, equal to an annual death-rate of 15·0 per 1,000, as compared with 16·6, the average rate in the 76 large towns. Sixty-two deaths were ascribed to the principal infectious diseases, giving a death-rate of 1·46 per 1,000. The average rate from these diseases in the 76 large towns was 1·84 per 1,000 for the same period. The infant mortality was equal to 121 deaths of infants under one year of age to 1,000 births registered. In the large towns this proportion ranged from 73 in Coventry to 181 in Burnley. Of the 62 deaths from the principal infectious diseases 16 were due to whooping cough, 15 to diphtheria, 8 to measles and to diarrhœa, 10 to scarlet fever, and 5 to enteric fever.

In the third quarter 634 deaths were registered from all causes being equal to an annual death-rate of 15·1 per 1,000, as compared with 15·3 the average rate in the 76 large towns. 151 deaths were ascribed to the principal infectious diseases corresponding to an annual death-rate of 3·5 per 1,000. The average rate from these diseases in the 76 large towns, was 2·56 per 1,000 for the same period. The infant mortality was equal to 125 deaths of Infants under one year of age, to 1,000 births registered. In the large towns this proportion ranged from 56 in Handsworth to 225 in Bootle. Of the 151 deaths from the principal infectious diseases, 56 were due to measles, 36 to diarrhœa, 29 to whooping cough, 18 to diphtheria, 9 to scarlet fever, and 3 to enteric fever.

In the fourth quarter the number of deaths registered from all causes, was 816 corresponding to an annual death-rate of 19·3 per 1,000, as compared with 17·9 the rate in the 76 large towns, 193 deaths were ascribed to the principal infectious diseases being equal to an annual death-rate of 4·34 per 1,000. The average rate from these diseases in the 76 large towns was 2·14 per 1,000 for the same period. The infant mortality was equal to 182 deaths of infants under one year of age to 1,000 births registered. In the large towns this proportion ranged from

92 in Bournemouth, to 280 in **Hanley**. Of the 193 deaths from the principal infectious diseases, 118 were due to measles, 39 to whooping cough, 21 to diphtheria, 10 to diarrhœa, 4 to scarlet fever, and 1 to enteric fever.

Amongst the causes chiefly responsible for the deaths during the year, the following may be mentioned; the death-rates from the several diseases being compared with the average rates in the 10 years 1892—1901.

	Death Rates per 1,000 persons living.	
	1902.	1892—1901.
Pneumonia	1·50 ...	1·62
Bronchitis	1·26 ...	1·35
Phthisis	1·29 ...	1·44
Measles	1·08 ...	0·37
Heart Disease	1·00 ...	1·06
Diarrhœa	0·32 ...	0·78
Cancer	0·67 ...	0·55
Whooping Cough	0.56 ...	0·46
Diphtheria	0.52 ...	0·48

On examining the statistics in the three Registration Sub-districts within the Borough, it will be seen that the general death-rate in each of these localities was as follows:—

East	Registration	Sub-district	12·7	per	1,000.
West	,,	,,	13·2	,,	,,
Central	,,	,,	16·2	,,	,,

The mortality from the principal infectious diseases varied but slightly in the three Sub-districts. The death-rates from this group of diseases being 2·2 per 1,000 in the East, and 2·3 in the West, and in the Central Sub-districts.

The rates ranging in the Municipal Wards from 3·9 in the Splott Ward, to 1·0 in the Park Ward.

Measles was these most fatal of these diseases throughout the Borough, the mortality ranging from 0·2 per 1,000 in the Riverside Ward, 0·03 in the Park Ward, and 0·8 in the Cathays Ward, to 2·1 in the Central Ward, and 2·2 in the Splott Ward. The death-rate from phthisis was distributed as follows, 1·2 per 1,000 in the Central Registration Sub-district, 0·9 in the West, and 0.8 in the East Sub-district. The highest rate in the Municipal Wards being 1·9 in the South Ward, and the lowest 0·4 in the Canton Ward. Diseases of the respiratory organs, including pneumonia and bronchitis, produced the highest death-rate (4·9 per 1,000) in the Adamsdown Ward, the lowest (1·9 per 1,000) being in the Park Ward.

TABLE X.—Gives the population of each year, the annual deaths from all causes from the seven chief zymotic diseases, and the death-rates from 1852 to 1902 inclusive, in the Borough of Cardiff:—

Year.	Population.	All Causes.			Seven Chief Zymotic Diseases.		
		No of Deaths.	Death Rates per 1,000	Mean of 10 years	No. of Deaths.	Death Rates per 1,000.	Mean of 10 years.
1852	19,724	620	31·4		175	8·8	
1853	21,094	644	30·5		129	6·1	
1854	22,464	925	40·1		353	15·7	
1855	23,834	641	26·9		71	2·7	
1856	25,204	772	30·6		136	5·3	
1857	26,574	883	33·2	29·2	234	8·8	8·5
1858	27,944	753	26·9		128	4·5	
1859	29,314	826	28·1		212	7·2	
1860	30,684	662	21·5		95	3·0	
1861	32,054	837	26·1		100	3·1	
1862	32,804	695	21·2		132	4·0	
1863	33,552	862	25·7		268	7·0	
1864	34,300	932	27·1		250	7·3	
1865	35,048	867	24·7		161	4·5	
1866	35,796	882	24·6		192	5·3	
1867	36,544	873	23·8	24·2	116	3·1	4·6
1868	37,292	843	22·6		109	2·9	
1869	38,040	1,005	26·4		156	4·1	
1870	38,788	903	23·2		133	3·4	
1871	39,356	891	22·5		158	3·9	
1872	40,284	916	22·7		234	5·8	
1873	41,032	995	24·2		103	2·5	
1874	41,780	885	21·2		154	3·6	
*1875	69,850	1,547	22·1		294	4·2	
1876	72,438	1,455	20·8		339	4·6	
1877	75,026	1,475	19·6	20·0	255	3·5	3·2
1878	77,614	1,468	18·9		197	2·5	
1879	80,202	1,428	17·6		137	1·7	
1880	82,790	1,634	19·7		306	3·7	
1881	85,378	1,556	18·2		164	1·9	
1882	88,603	1,724	19·4		293	3·3	
1883	91,204	1,807	19·8		253	2·7	
1884	93,468	2,250	24·3		476	5·0	
1885	97,034	2,481	25·5		521	5·3	
1886	100,736	2,269	22·5	21·5	532	3·2	3·3
1887	104,580	2,280	21·8		278	2·6	
1888	108,570	2,212	20·3		324	2·9	
1889	112,712	2,190	19·4		248	2·1	
1890	117,012	2,469	21·1		282	2·4	
1891	130,283	2,873	22·0		272	2·0	
1892	132,895	2,560	19·2		371	2·7	
1893	136,168	2,794	20·4		408	2·9	
1894	139,519	2,415	17·3		257	1·8	
1895	142,958	2,840	19·9		324	2·2	
1896	146,479	2,795	19·0		362	2·4	
1897	150,087	2,534	16·8	17·9	371	2·4	2·3
1898	153,783	2,627	17·0		396	2·5	
1899	157,414	2,858	18·1		384	2·4	
1900	161,452	2,667	16·5		402	2·4	
1901	165,308	2,653	16·0		284	1·7	
1902	168,909	2,865	16·9		459	2·6	

*Canton and Roath taken into the Borough.

Populations and death-rates as estimated by the Registrar-General previous to the Census of 1901:—

Year.	Estimated Population.	Death-rate.	Year.	Estimated Population.	Death-rate.
1892	136,181	18.7 per 1,000	1897	170,063	14.9 per 1,000
1893	142,435	19.6 ,,	1898	170,770	14.8 ,,
1894	148,890	16.2 ,,	1899	185,826	15.3 ,,
1895	155,637	18.2 ,,	1900	194,247	13 7 ,,
1896	162,690	16.8 ,,			

TABLE XI.—Analysis of Deaths in the Municipal Borough of Cardiff in the Registration Sub-districts, and in each Ward in the Borough during the Year 1902.

LOCALITIES.	Population, 1902.	Area in Acres.	Persons per Acre.	Total Births.	Birth-rate.	Total Deaths.	Death rate.	Deaths under One Year per 1,000 Births Registered.	Seven Chief Zymotic Diseases		Principal Zymotic Diseases.														Tabes Mesenterica Tuberculous Meningitis, and other forms of Tuberculosis.		Phthisis.		Diseases of Respiratory Organs.	
											Small Pox.		Measles.		Scarlatina.		Diphtheria.		Whooping Cough.		Typhoid Fever.		Typhus Fever.		Diarrhœa.						
									Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.	Deaths.	Death-rate.
Borough of Cardiff ...	168,909	6,373	26	5,278	31·2	2,821	16·7	145	467	2·76	...	...	184	1·08	36	0·21	88	0·52	95	0·56	9	0 05	...	...	55	0·32	110	0·65	219	1·29	510	3·01
West Cardiff Registration Sub-district																																
Canton Ward ...	23,165	...	...	733	32·0	282	12·1	143	54	2·3	...	...	22	0·9	3	0·1	2	0·08	17	0·7	...	...	...	...	10	0·4	17	0·7	11	0·4	52	2·2
Riverside Ward ...	18,032	...	...	392	21·7	216	11 9	112	20	1·1	...	...	5	0·2	1	0·05	..	...	7	0·3	...	...	...	...	7	0·3	8	0·4	32	1·7	43	2·2
Grangetown Ward	19,297	...	...	756	39·1	304	15·7	161	66	3·4	...	...	19	0·9	4	0·2	19	0·9	11	0·5	...	...	...	...	13	0·6	15	0·7	58	3·0	60	3·1
West Cardiff ...	60,494	2,060	29	1,881	31 0	802	13·2	144	140	2·3	...	...	46	0·7	8	0·1	21	0·3	35	0·5	...	...	...	...	30	0·4	38	0 6	58	0·9	153	2·5
Central Cardiff Registration Sub-district																																
South Ward ...	11,042	...	...	271	24·5	173	15·6	166	19	1·7	...	...	10	0·9	...	...	2	0 1	5	0·4	...	...	...	...	2	0·1	1	0·09	21	1·9	30	2·7
Central Ward ...	11,532	...	...	276	23 9	201	17·4	155	39	3 3	...	...	25	2·1	1	0·08	...	...	7	0·6	...	...	...	...	6	0·5	10	0·8	19	1·6	31	2·6
Cathays Ward ...	20,146	...	...	672	33·3	272	13·5	120	44	2·1	...	...	17	0·8	3	0·1	6	0 2	14	0·6	...	...	...	...	4	0·1	11	0·5	12	0·5	58	2·8
Adamsdown ...	12,602	...	...	405	32·1	254	20·1	153	27	2·1	...	...	19	1·5	2	0·1	1	0·07	2	0·1	...	...	...	...	3	0·2	8	0·6	15	1·1	62	4·9
Central Cardiff ...	55,322	3,832	14	1,624	29·3	900	16·2	142	129	2·3	...	...	71	1 2	6	0 1	9	0·1	28	0·5	...	...	...	...	15	0·2	30	0·5	67	1·2	181	3·2
East Cardiff Registration Sub-district																																
Splott Ward ...	16,559	...	...	639	38·5	261	15·7	153	65	3·9	...	...	38	2·2	3	0·1	6	0·3	14	0·8	1	0·06	...	...	3	0·1	9	0·5	15	0·9	48	2·8
Roath Ward ...	15,387	...	...	397	25 8	216	14·0	146	39	2·5	...	...	21	1·3	1	0 06	2	0·1	12	0·7	...	...	...	...	3	0·1	12	0·7	18	1·1	35	2·2
Park Ward ...	24,667	...	...	658	26·6	247	10 0	129	26	1·0	...	...	8	0·3	3	0·1	6	0·2	6	0·2	...	...	...	...	3	0·1	17	0·6	15	0·6	48	1·9
East Cardiff ...	56,613	481	117	1,694	29·9	724	12·7	142	130	2·2	...	...	67	1·1	7	0·1	14	0·2	32	0·5	1	0·01	...	...	9	0·1	38	0·6	48	0·8	131	2·3
Infectious Diseases Hospital...	162	...	...	...	...	67	...	...	66	...	...	...	...	...	15	...	43	...	...	...	8	...	...	...	...	...	...	...	...	...	1	...
Union Workhouse ...	880	...	...	79	...	235	...	341	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	2	...	44	...	36	...
Infirmary	175	...	...	...	...	90	...	...	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	2	...	2	...	7	...
Seamen's Hospital ...	49	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...

TABLE XII.—Annual Death-rate per 1,000 in some of the large towns in England and Wales for the 10 years 1893-1902 inclusive :—

Large Towns.	Annual Death-rate per 1,000 living.									
	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.
London	21·3	17·8	19·8	18·6	18·2	18·7	19·8	18·8	17·6	17·7
West Ham ...	18·9	16·2	17·9	16·1	15·7	15·4	16·7	15·9	18·0	17·1
Croydon ...	16·3	13·2	14·5	14·2	13·1	13·9	15·0	14·6	12·9	14·0
Brighton ...	18·4	16·4	18·9	16·1	15·1	16·9	19·0	17·8	16·5	15·8
Portsmouth ...	18·2	15·2	17·8	16·6	16·2	16·3	19·7	17·3	17·9	16·8
Plymouth ...	21·2	18·3	20·1	19·6	19·0	19·5	21·7	20·8	17·9	17·0
Bristol ...	18·9	17·3	18·1	16·9	17·2	17·2	18·2	16·7	16·0	17·4
Swansea ...	19·6	17·0	18·3	16·8	15·8	18·6	18·1	17·1	18·6	16·1
Wolverhampton ...	23·3	20·7	24·4	20·0	22·5	21·3	21·8	22·5	16·9	16·4
Birmingham ...	22·2	18·6	20·3	20·8	21·6	20·0	20·8	21·5	20·5	18·6
Norwich ...	19·3	18·7	19·3	17·4	18·8	19·0	17·3	17·6	18·7	16·7
Leicester ...	20·0	14·7	17·2	16·7	17·7	16·9	17·7	17·4	15·9	14·9
Nottingham ...	18·5	17·2	19·0	17·5	18·8	17·7	20·0	19·1	18·5	16·9
Derby ...	18·2	15·0	16·7	15·7	16·0	16·8	16·9	17·5	15·2	13·9
Birkenhead ...	20·5	18·1	19·5	19·2	18·3	17·4	19·2	16·8	18·7	17·7
Liverpool ...	27·3	23·8	28·8	22·7	24·4	24·0	26·4	25·7	22·3	22·5
Bolton ...	24·1	18·8	24·0	20·7	22·0	19·4	19·9	19·5	18·2	16·9
Manchester ...	24·9	20·4	25·2	22·6	23·1	21·9	24·6	24·1	22·1	20·0
Salford ...	24·1	21·0	25·6	22·6	23·9	22·7	23·8	25·1	21·7	19·3
Oldham ...	21·0	18·6	22·0	20·3	19·2	17·6	20·5	19·6	19·6	19·1
Burnley ...	21·9	18·7	23·4	17·5	19·5	16·3	19·6	16·3	19·0	19·5
Blackburn ...	23·3	17·9	24·3	17·9	19·5	18·4	19·1	20·5	19·5	16·9
Preston ...	26·4	20·8	23·9	20·8	24·4	19·3	22·8	24·0	21·0	19·1
Huddersfield ...	17·2	15·8	16·9	16·5	16·4	15·9	16·2	16·8	16·7	17·8
Halifax ...	17·4	16·5	19·3	17·3	16·5	17·9	18·3	18·1	16·4	15·7
Bradford ...	21·0	17·0	19·9	16·5	17·5	17·6	18.4	16·4	16·8	15·8
Leeds ...	22·3	17·9	20·5	18·8	19·9	19·2	19·1	20·0	19·3	17·6
Sheffield ...	22·3	17·8	20·5	19·3	21·2	20·2	22·2	22·6	20·4	17.1
Hull	21·8	17·4	20·8	18·9	18·6	18·4	19·3	19·7	18·6	17·2
Sunderland ...	22·5	20·8	21·8	19·8	19·7	22·6	21·5	21·4	21·4	19·5
Gateshead ...	19·3	17·7	19·6	19·1	18·3	20·6	18·8	19·0	21·6	17·7
Newcastle-on-Tyne ...	21·0	18·3	20·5	18·5	19·1	21·4	20·6	19·5	21·9	19·9
Cardiff	**20·4**	**17·3**	**19·9**	**19·0**	**16.8**	**17·0**	**18·1**	**16·5**	**15·7**	**16·9**

INFANT MORTALITY.—The rate of Infant Mortality as measured by the proportion of deaths of infants under one year of age to 1,000 births registered was 145, as compared with 148 in 1901, and with 160 the average rate in the ten years, 1892-1901.

In the large towns the rate of infant mortality in 1902 was equal to an average of 145 deaths under one year of age to 1,000 births registered.

The infant mortality calculated in this way ranged from 84 in Hornsey, 105 in Coventry, and 107 in Wallasey to 174 in Hanley, 177 in Burnley, 178 in Rhondda, 179 in Stockport, 185 in Merthyr-Tydfil, and 189 in Preston.

In the Registration Sub-districts of Cardiff the infant mortality was as follows :—

West Registration Sub-district	...	...	144
Central	,,	,,	...	...	142
East	,,	,,	...	...	142

These rates do not include the infants who died in the Cardiff Union Workhouse and which corresponded to a proportion of 3041 under one year of age to 1,000 births in that Institution during the year.

The chief causes of deaths amongst infants were as follows :—

CAUSES OF DEATH.	Number of Deaths under 1 Year of Age.
Premature Birth	88
Pneumonia	74
Bronchitis	68
Whooping Cough	45
Diarrhœa	40
Tubercular Disease other than Phthisis	43
Measles	33

The following table shows the rate of infant mortality which has prevailed in some of the large towns in past years, from which it will be seen that the rate of infant mortality in Cardiff is comparatively low. As mentioned in previous reports the rate of infant mortality expressed in the manner indicated is a valuable test of the sanitary condition of a district, and is not liable to the error of a calculation based on an uncertain estimate of the population. From the foregoing table it will be noticed that the diseases which proved most fatal to infants were of a preventable nature, and were probably connected with improper feeding, exposure to cold, or want of cleanliness.

The infant mortality throughout the country for the year 1902 was as follows :—

	Deaths under 1 Year to 1,000 Births Registered.
England and Wales	133
76 Great Towns	145
103 Smaller Towns	135
Cardiff	145

The influence of weather and season upon the infant mortality in the district is shewn in the returns for each quarter of the year. Of the 142 deaths under one year of age from Bronchitis and Pneumonia during the year 105 or 74 per cent., occurred in the first and fourth quarters of the year. Of the 40 deaths at that age from Diarrhœa and Enteritis 36 occurred in the third or summer quarter of the year.

TABLE XIII.

Towns.	Deaths under one year to 1,000 Births registered.									
	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
London	164	143	166	161	158	167	167	160	149	141
West Ham	170	138	168	165	171	170	197	189	171	149
Croydon	155	121	134	150	134	150	154	132	141	132
Brighton	169	138	164	135	142	181	173	166	161	125
Portsmouth	164	131	175	154	168	156	197	155	163	152
Plymouth	169	169	178	178	183	170	190	175	149	155
Bristol	141	150	143	142	148	164	158	133	131	131
Swansea	170	163	178	161	139	184	166	175	174	135
Wolverhampton	208	166	218	184	217	200	184	206	163	134
Birmingham	198	163	183	197	214	191	191	199	187	157
Norwich	195	164	190	164	196	192	179	178	183	167
Leicester	220	162	203	187	205	191	195	175	175	153
Nottingham	170	174	190	168	205	178	210	196	193	159
Derby	156	123	161	151	167	169	162	174	154	125
Birkenhead...	196	143	174	177	162	186	186	160	181	148
Liverpool	211	179	210	173	200	184	198	186	188	163
Bolton	199	162	212	168	186	168	181	171	172	134
Manchester	203	160	203	176	194	197	206	189	199	152
Salford	210	174	231	199	220	212	209	207	204	157
Oldham	187	161	190	184	183	175	198	172	173	148
Burnley	223	170	242	170	219	195	269	205	226	177
Blackburn	241	169	236	171	207	206	189	220	193	159
Preston	269	217	248	203	263	225	255	236	216	189
Huddersfield	141	160	158	166	130	153	152	132	132	138
Halifax	173	135	158	149	139	163	159	132	127	144
Bradford	197	145	203	143	178	185	181	141	168	139
Leeds	206	155	191	169	191	182	171	183	188	159
Sheffield	191	157	197	173	197	195	194	200	201	150
Hull	206	142	205	173	178	182	175	183	175	137
Sunderland	188	167	189	158	163	202	175	169	182	147
Gateshead	170	152	186	172	173	208	177	169	197	136
Newcastle-on-Tyne	174	157	186	165	177	190	193	170	178	139
Cardiff	**179**	**141**	**179**	**165**	**150**	**158**	**164**	**141**	**148**	**145**

INFECTIOUS DISEASES. — The 2,865 deaths from all causes included 459 from the principal infectious diseases. The subjoined table shows the number of deaths from each of these diseases during the year 1902 :—

	No. of Deaths.
Measles	184
Scarlet Fever	36
Diphtheria	87
Enteric Fever	9
Whooping Cough	96
Diarrhœa	47

The 459 deaths from these diseases were equivalent to an annual death-rate of 2·6 per 1,000 persons living, as compared with 1·7 the rate in 1901.

The death-rate from these diseases averaged 2·12 per 1,000 in the 76 large towns of England and Wales, ranging from 0·63 in Hornsey, 0·78 in Bournemouth, 0·82 in Hastings, 0·85 in Handsworth, to 3·02 in Wigan and in Rhondda, 3·08 in Liverpool, 3·14 in Bootle, 3·20 in West Ham, 3·61 in Burnley, and 3·84 in Hanley.

In Cardiff the death-rate from this group of diseases in the several Registration Sub-Districts was as follows:—

East Cardiff Registration Sub-District	...	2·2 per 1,000
West ,, ,, ,,	...	2·3 ,,
Central ,, ,, ,,	...	2·3 ,,

The local incidence of infectious disease, as shown by the number of notifications received during the year, was as follows:— East Cardiff, 258; Central Cardiff, 307; West Cardiff, 522; giving a proportional incidence of 8·6 per 1,000 persons living in the West Registration Sub-district, 5·5 in the Central, and 4·5 in the East Sub-districts.

TABLE XIV.

Cases of Infectious Diseases notified in the Cardiff Urban Sanitary District since the adoption of the Infectious Disease Notification Act, 1889:—

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
Small Pox ...	...	9	5	4	10	1	45	7	...	...	4	8	2
Diphtheria ...	63	67	155	462	326	229	296	512	940	628	706	724	686
Croup ...	9	3	9	17	17	19	10	4	20	12	8	10	15
Scarlet Fever ...	335	685	1,851	816	577	484	874	758	332	184	383	1,362	1433
Enteric Fever ...	152	130	118	105	62	79	74	117	80	94	95	73	76
Typhus Fever ...	...	...	...	41	1	...	1	...	...	...	4	..	...
Erysipelas ...	45	52	95	152	135	132	134	163	133	176	106	152	169
Puerperal Fever	4	10	12	24	19	17	21	12	18	13	15	16	13
Total ...	608	956	2,245	1,621	1,147	961	1,455	1,573	1,523	1,107	1,321	2,345	2,394

SMALL-POX.— No deaths from Small-pox were registered during the year. Two cases were notified to the Medical Officer of Health, as follows:—

On the 5th of February the Medical Officer of the Cardiff Union Workhouse called my attention to a man suffering from Small-pox and who had been placed in the Isolation Ward of the Union Infirmary.

The man was a tramp, who had been living in London until a few days before the above-named date, when he was admitted to the Workhouse. He was at once removed to the Small-pox Hospital, and those who had been in contact with him were vaccinated and were kept under daily observation for three weeks.

On the 26th December my attention was called by the medical man in attendance to a case of Small-pox in Bruce Street. The person attacked with the disease was E. J., the steward on board a steamer which came from Lisbon on the 13th December and arrived in Cardiff on the 18th. He first showed symptoms of illness on the 23rd December after arriving at his home in Bruce Street.

The disease in this case was obviously contracted at Lisbon. The patient was immediately removed to the Small-pox Hospital. Nineteen persons who had been in contact with him were vaccinated, and no fresh cases occurred.

The following particulars have been supplied to me by the Vaccination Officer of the Cardiff Board of Guardians, and relate exclusively to the Borough of Cardiff:—

During the year 1902 5,278 births were registered within the Borough, 457 children died unvaccinated, of the remainder 3,179 or 66 per cent. were successfully vaccinated; 27 certificates of conscientious objection were granted, equal to 0.5 per cent. of the births; 24 were registered as insusceptible; 57 postponements were granted, and 1,227 were unaccounted for.

During the year the following Report of the Medical Officer of Health upon the Vaccination Act was presented to the Health Committee. The recommendations contained in it were adopted at a subsequent meeting of the Council of the County Borough.

REPORT OF THE MEDICAL OFFICER OF HEALTH ON THE VACCINATION ACT, 1898.

To the Chairman and Members of the Health and Port Sanitary Committee.

Gentlemen,

In accordance with a resolution of your Committee, I beg to report upon certain questions which have been under your consideration relating to the administration of the above Act. The report was more particularly called for in consequence of a letter from the Clerk of the Beckenham Urban District Council, asking your co-operation in taking steps to obtain the repeal of Clause 2 of the Vaccination Act, 1898, relating to the "Conscientious Objector," by passing a resolution in favour of the repeal and by forwarding a copy of the same to the Local Government Board. At your request also I made enquiries as to the steps which are being taken by other towns with regard to the request from Beckenham, and have appended to this report the information obtained. In the first place I would submit that as the Vaccination Act of 1898 ceases to be in force at the end of the year 1903, a favourable opportunity now presents itself for urging upon the Government an alteration in the law, before the details of any fresh legislation are decided upon. When the provisions of the Vaccination Bill were before Parliament, Clause 2 was much discussed, and there were many objections raised to the insertion of this Clause on the ground of the increased facility which it would give to those who desired, on some frivolous pretext, to evade the operation of the law. The object of the Royal Commission, as gathered from their report, was to increase rather than diminish the amount of primary Vaccination throughout the country.

This may be inferred from the following paragraph to the Report:—

"After careful consideration and much study of the subject we have arrived at the conclusion that it would conduce to increased Vaccination if a scheme could be devised which would preclude the attempt (so often a vain one) to compel those who are honestly opposed to the practice to submit their children to Vaccination, and at the same time leave the law to operate as at present, to prevent children remaining un-vaccinated owing to the neglect or indifference of the parent."

The Clause in the Act of 1898 relating to the "conscientious objector," was evidently inserted to meet the view expressed in this paragraph. There is reason, however, to believe that an effect the reverse of that desired by the Commission has been produced, and that the Clause has to some extent had the effect of raising up conscientious objectors, who, without the stimulus of this Clause, assisted by the arguments of the anti-vaccinator, would never have been heard of.

The number of children, therefore, who from other causes annually escape Vaccination, is constantly increased by the addition of those whose parents avail themselves of this Clause. The majority of the un-vaccinated still consist of the infants of the ignorant and careless parents, and who have not been discovered by the Vaccination Officer. From the latest available statistics it would appear that in England and Wales in the year 1898, 923,059 births were registered. If from the 923,059 births deduction be made of the deaths that took place without vaccination, it appears that, of the surviving 812,147 children, there were registered 69·3 per cent as successfully Vaccinated; 0·4 per cent as either insusceptible of Vaccination or as having had Small Pox; 2·1 per cent as under medical certificate of postponement; and 5.8 per cent in respect of whom certificates of conscientious objection to Vaccination had been obtained; leaving 22·4 per cent still unaccounted for as regards Vaccination.

In Cardiff the number of exemption orders obtained since the passing of the Act 1898 up to the present time is 288, equal to 1·8 per cent of the births during that period. During the year 1901, 5,206 births were registered within the Borough, 503 children died un-vaccinated, of the remainder 3,597 or 76·1 per cent were successfully vaccinated, 69 certificates of conscientious objection were granted equal to 1·4 per cent of the births, 933 or 19·7 per cent were unaccounted for.

Although perhaps the number of exemptions from Vaccination on account of conscientious objection may be relatively small, the actual number of such exemptions is by no means inconsiderable.

From the returns published it would appear that in England and Wales, since the passing of the Act, on an average about 40,000 persons have annually taken advantage of the Clause to claim exemption from Vaccination for their children. In certain places, such as Leicester, for instance, a most unjustifiable and apparently illegal interpretation has been placed upon the term "conscientious objection," and where, according to Dr. Bond, "whole batches of 'conscientious mothers' have been not infrequently polished off with a rapidity which is only limited by the time required for the accommodating Magistrates to sign the certificates of exemption."

I have, at the same time, to suggest to your Committee the desirability of urging upon the Government a much needed reform, namely, the transference of the administration of the Vaccination Acts from Boards of Guardians to Sanitary Authorities, and in making this suggestion I have no desire to imply that Boards of Guardians have, as a rule, imperfectly discharged their duties under the Vaccination Acts. In some cases they have notoriously done so. In Cardiff I have every reason to believe that the Guardians have carried out these Acts in a conscientious manner, but the reasons which governed Parliament in placing Vaccination under the Guardians of the Poor in the year 1840 no longer exist. Since that date the Public Health Act, 1875, has come into operation, placing matters connected with sanitation and the prevention of disease under the jurisdiction of Urban and Rural Sanitary Authorities. The most important measure connected with the prevention of Small-pox, still remains, however, in the hands of the Board of Guardians, although Vaccination does not by any means only concern paupers. The responsibility of dealing with an outbreak of Small-pox and of preventing its spread by isolation and disinfection, devolves upon the Sanitary Authority, which has no means of knowing the localities in the district in which primary Vaccination has been neglected, *i.e.*, the localities in which the disease is most likely to spread, except by means of information derived from the Guardians or by undertaking work which properly belongs to the Vaccination Officer.

There is reason to believe that ever since the earliest times of compulsory Vaccination there has been a widespread idea amongst the working classes that, in availing themselves of the services of the Public Vaccinators appointed by the Guardians of the Poor, they have been receiving some sort of parochial or medical relief under the Poor Laws. This idea, although erroneous, has doubtless had some effect in raising opposition to the practice of Vaccination. Even so long ago as in 1854 the President of the Poor Law Board expressed his doubts in the

House of Commons "Whether it was a wise course to place Vaccination in connection with the Poor Laws in any way." Practically all the proceedings under the Vaccination Acts form an important branch of public health work and have no connection with the relief of the poor, and they would, I believe, be more conveniently administered by the Authority responsible for the public health. As an example, an outbreak of Small-pox occurs in a particular locality, the officers of the Sanitary Authority are called in and do all that is necessary in the way of isolation and disinfection, do all that is possible to discover the names and addresses of persons who may have been in contact with the infected person and keep them under daily observation until the danger of infection is over, but they are not concerned with the most important preventive measure, namely, the Vaccination or Re-vaccination of those who are in danger of infection. Further, in the case of Vaccination or Re-vaccination of persons on board vessels infected with Small-pox, it would tend to prevent delay if the Port Sanitary Authority, whose officers are on the spot, were also the Vaccination Authority. Delay in such cases may mean interference with, and damage to, the trade of the port. In the year 1896, at the time when cases of Small-pox were being introduced into Cardiff from Gloucester, I called your attention to this matter in my Annual Report in the following terms:—

"Early in the month of January I communicated with the Board of Guardians, who "are the Vaccination Authority, and represented to them the desirability of issuing public notices "calling the attention of the inhabitants of the Borough to the need of protecting themselves "and their children by Vaccination. This they readily assented to. At the same time I suggested "that additional Vaccination Officers should be appointed, with a view of discovering evasions of "the Vaccination Laws, and of inducing adults to be re-vaccinated. This step, however, the "Board did not consider desirable. I, therefore, gave instructions to the Inspectors of the Health "Department to make enquiries as to the condition of Vaccination in the houses visited by them. "The results of these enquiries I forwarded when necessary to the Vaccination Officer. This "proceeding shows that however willing one authority may be to assist another in matters "connected with the health of the district, greater efficiency would be obtained by unity of control. "It is an anomalous position for a Sanitary Authority, which is held primarily responsible for "the protection of the community against infectious disease, that the chief preventive measure "in the case of Small-pox should be in the hands of another authority."

With respect to the desirability of enforcing by law the re-vaccination of young persons at a certain age, I would only observe that this plan has been adopted in some other countries with very great benefit to the community, and I can see no reason why the benefit should not also be conferred upon the people of England and Wales. According to the Report of the German Vaccination Commission compulsory re-vaccination came into force in Germany in 1874, when the re-vaccination of all school children in the 12th year of age was required by law. The Report states that "during the twenty years preceding compulsory re-vaccination the mean annual Small-pox death-rate per 100,000 of the population was 26·8, as compared with 2·4, the rate in the years 1875—82. But you have a sufficient example of the benefits of re-vaccination in the case of your own officials, who, in the performance of their duty, are brought at times into close contact with Small-pox patients. None of these, whether Medical Officer, Sanitary Inspectors or Hospital Nurses or Servants have to my knowledge ever contracted Small-pox when they have been protected by Vaccination. Re-vaccination is an additional safeguard and should be universally practised. The recommendation contained in this Report, and now submitted for your consideration, are therefore the following:—

That in view of the approaching termination of the Vaccination Act of 1898 the Local Government Board be urged to secure in any new Vaccination Act:—

1stly.—The transfer to Sanitary Authorities of the administration of the Vaccination Acts.

2ndly.—The omission of any Clause giving exemption from Vaccination on the ground of conscientious objection.

3rdly.—The compulsory re-vaccination of all persons on reaching a certain age.

REPLIES TO INQUIRIES *Re* REPEALING CLAUSE 2 OF THE VACCINATION ACT, 1898.

Town.	Whether the Sanitary Authority has passed any Resolution in favour of the movement for Repealing Clause 2 of the Vaccination Act, 1898?
Birkenhead	No.
Birmingham ...	No.
Blackburn	No.
Bolton	Yes.
Bradford	No.
Brighton	No.
Bristol	No.
Burnley	No.
Croydon	No. (This matter was considered at the last meeting of the Health Committee; no action taken).
Derby	No.
Gateshead	No.
Halifax	No.
Huddersfield ...	No. (This matter has been considered by the Health Committee; no resolution passed.)
Hull	No.
Leeds	No.
Leicester	No.
Liverpool	Yes.
Manchester	No.
Newcastle-on-Tyne ..	No.
Norwich	No.
Nottingham	No.
Oldham	No.
Plymouth	No.
Portsmouth	No.
Preston	No.
Salford	No reply.
Sheffield	No. (This matter has been considered by the Health Committee; no resolution passed.)
Sunderland	No. (This matter has been considered by the Health Committee; no resolution passed.)
Swansea	No.
West Ham	No.
Wolverhampton ...	No.

Since this return was obtained Mr. Long, the President of the Local Government Board, stated in Parliament, in reply to a question by Mr. Forster, that he had received resolutions from 251 Local Authorities advocating the abolition of the Clause of the Vaccination Act relating to the "Conscientious Objector." Mr. Long also stated that the question would have to be considered next year, but in the meantime he did not propose to take steps to repeal the Clause.

SCARLET FEVER.—Thirty-six deaths were registered from scarlet fever during the year 1902. This number was equal to an annual death-rate of 0·21 per 1,000 of the population as compared with 0·16 the average rate in the ten years 1892—1901.

The mortality from scarlet fever throughout the country in 1902 was as follows:—

	Death-rate per 1,000.
England and Wales	0·15
76 Great Towns	0·19
103 Smaller Towns	0·14
Cardiff	0·21

The number of cases of scarlet fever notified during the year 1902 was 1,433. With the exception of the year 1892, when the maximum of 1851 was reached, it was the greatest number notified since the Infectious Disease Notification Act came into force. The number of cases notified in each year is shown in the following table:—

TABLE XV.

Year.	Population.	No. of Cases Notified.	No. of Deaths.	Death-rate per 1,000.	Mortality per Cent. of Cases Notified.
1891 ...	130,283 ...	685 ...	35 ...	0·27 ...	5·0
1892 ...	132,895 ...	1,851 ...	87 ...	0·65 ...	4·7
1893 ...	136,168 ...	816 ...	39 ...	0·28 ...	4·7
1894 ...	139,519 ...	577 ...	8 ...	0·05 ...	1·3
1895 ...	142,958 ...	484 ...	8 ...	0·05 ...	1·6
1896 ...	146,479 ...	874 ...	28 ...	0·19 ...	3·2
1897 ...	150,087 ...	758 ...	17 ...	0·11 ...	2·2
1898 ...	153,783 ...	332 ...	8 ...	0·05 ...	2·4
1899 ...	157,414 ...	184 ...	3 ...	0·01 ...	1·6
1900 ...	161,452 ...	383 ...	11 ...	0·06 ...	2·8
1901 ...	165,308 ...	1,362 ...	29 ...	0·17 ...	2·1
1902 ...	168,909 ...	1,433 ...	36 ...	0·21 ...	2·1

The local incidence of scarlet fever in each quarter of the year, as shown by the notifications in the Registration Sub-districts, was as follows:—

	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Total.
West Cardiff	163	134	138	150	585
Central Cardiff	158	90	74	103	425
East Cardiff	149	107	95	72	423
Total	470	331	307	325	1433

The proportion of deaths from scarlet fever to cases notified amounted to 2·5 per cent., and of the 1,433 cases 709 or 48 per cent. were removed to the Hospital for Infectious Diseases.

Scarlet fever therefore prevailed somewhat extensively throughout the entire Urban District of Cardiff, and, as will be seen by the foregoing table, there was no special incidence of the disease upon any of the Registration Sub-districts.

The Isolation Hospital proved of great value in checking the spread of disease, as it enabled the Medical Officer of Health to remove from crowded districts cases which might otherwise have proved centres of infection. The advantage of hospital isolation is shown by comparing epidemic years in which there was no hospital isolation with those in which such isolation was more complete.

In the year 1892 the former condition existed, and out of 1,851 cases of scarlet fever notified, 87 deaths occurred, giving a death rate of 0.65 per 1,000 of the population and a proportion of deaths to cases notified of 4·7 per cent.

The proportion of the population attacked with scarlet fever in 1892 was 14 per 1,000. In the more recent epidemics of 1901 and 1902 the conditions were as follows :—

	Proportion attacked per 1,000 persons living.	Death-rate	Percentage of Deaths to cases notified.
1901 ..	8·4 ...	0·17 ...	2·1
1902 ...	8·4 ...	0·21 ...	2·1

Apart from the questions of the spread of infection and diminished mortality there is to be taken into consideration the very great advantage which results from hospital isolation by the lessened interference with school attendance, and with various trade processes where the infected member of the family has been removed from the premises. Hospital isolation, therefore, although it may never entirely remove scarlet fever from amongst us, will, if systematically enforced, have the effect of reducing the extent of an epidemic, and of extending the interval between epidemic periods, thus diminishing the sickness rate and the fatality of the disease, by postponing the infection until a later age.

It has been shown that by shielding children against infection during the first few years of life they are rendered less and less susceptible to scarlet fever, until they finally become almost insusceptible, and even if they ultimately take the disease, the danger to life is much reduced by deferring the attack until a later period of life.

In the following table the deaths have been distributed according to age periods, and seasons of the year.

Deaths from Scarlet Fever in 1902.

TABLE XVI.

1st Quarter.		2nd Quarter.		3rd Quarter.		4th Quarter.	
Ages.	Deaths.	Ages.	Deaths.	Ages.	Deaths.	Ages.	Deaths.
0—1 ...	2	0—1 ...	0	0—1 ...	0	0—1 ...	0
1—5 ...	8	1—5 ...	8	1—5 ...	7	1—5 ...	2
5—15 ...	3	5—15 ...	2	5—15 ...	2	5—15 ...	2
15 and upwards	0	15 and upwards	0	15 and upwards	0	15 and upwards	0

A large number of certificates for exclusion from school attendance were granted, both with respect of children infected with the disease and of those who had been in contact with infected persons. The total number of notices for exclusion from the Public Elementary Schools amounted to 1566 during the year, distributed as follows :—

NAME OF SCHOOL.	Number of Notices Sent to Schools.
Severn Road Board School	127
Albany Road Board School	102
Wood Street Board School	98
Crwys Road Board School	97
Grangetown Board School	85
Gladstone Board School	78
Court Road Board School	75
Radnor Road Board School	74
Moorland Road Board School	71
Lansdowne Road Board School	66
Adamsdown Board School	65
Roath Park Board School	56
Splott Road Board School	55
Stacey Road Board School	38
Virgil Street Board School	38
St. James' National School	37
St. German's National School	35
St. Patrick's Roman Catholic School	33
St. David's Roman Catholic School	30
Croft Street National School	29
Higher Grade School	28
St. John's (Canton) National School	26
St. Peter's Roman Catholic School	26
Grangetown National School	25
St. Monica National School	20
St. Alban's Roman Catholic School	19
St. John's (Queen Street) National School...	17
Marlborough Road Board School	15
Mount Stuart Square National School	14
South Church Street Board School	12
Bute Terrace National School	12
St. Mary's Roman Catholic School	11
St. Andrew's National School	11
St. Paul's Roman Catholic School	10
Intermediate Schools	8
Eleanor Street Board School	8
St. Cuthbert's Roman Catholic School	6
St. Dyfrig National School	5
St. Mary's Mission National School	4
	1,566

MEASLES.—184 deaths from measles were registered during the year, being equal to an annual death rate of 1·08 per 1,000 persons living. In the 76 large towns the fatal cases of measles corresponded to a rate of 0.49 per 1·000. The highest rates were recorded in Burnley, Barrow-in-Furness, Hull, South Shields, Newport (Mon.), Cardiff, and Rhondda.

In large towns epidemics of measles invariably recur at short intervals; thus in Cardiff 162 deaths from this disease occurred in the year 1900, followed by 3 deaths in 1901. In the year under consideration the excessive fatality from measles occurred in the third and fourth quarters, the number of deaths being as follows during each quarter :—

1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.
2 ...	8 ...	56 ...	118

The number of fatal cases of measles rose from 4 in the week ending October 18th to 11, 13, and 20 in each succeeding week, reaching a maximum of 22 in the week ending November 15th, when the number of deaths rapidly diminished, the fatality ceasing altogether in the following January.

The spread of measles is exceedingly difficult to control in large Urban communities, owing to the influence of school attendance and to the uninterrupted contact which so frequently takes place between the sick and the healthy. The disease is not usually recognized until the appearance of the eruption, when it has been infectious for two or three days, a condition which would render compulsory notification of small value to the Sanitary Authority.

It has been found on previous occasions that the temporary closure of the large Public Elementary Schools had a decided effect in checking the extension of the disease. Acting on my my advice therefore, the Sanitary Authority served notices on the Managers of fifteen Public Elementary Schools to close the Infant Departments.

These schools were accordingly closed during the months of November and December.

The fall in the weekly number of deaths corresponded closely with the period of closure, and may, I believe, be attributed to a great extent to this procedure.

This is shown in the following statement.

Week Ending.	No. of deaths from Measles.
October 25th	11
November 1st	13
,, 8th	20
,, 15th	22
,, 22nd	9
,, 29th	11
December 6th	7
,, 13th	6
,, 20th	3
,, 27th	0
January 3rd	0

I recommended the closure of the Infant Departments only, as this interferes but slightly with the education of school children in general. The disease was largely confined to very young children, and the mortality almost entirely so. Of the 184 deaths from measles during the year, 172 occurred amongst children under 5 years of age, and of this number 132 were amongst children between the ages of one and five years, at a period therefore, when they were attending Infant Schools.

The aggregation of children in Elementary Schools constitutes one of the conditions most favourable to the development and spread of diseases of the infectious type. The evidence which has accumulated during recent years is quite conclusive as to the risk incurred by bringing a large number of children together within the confined and limited area of school premises, where they are at times obliged to breathe an atmosphere overcharged with respiratory impurities. Unless the most thorough precautionary measures are undertaken with a view to the detection and exclusion of infected scholars, the dissemination of such diseases as diphtheria, scarlet fever, and measles is exceedingly likely to occur. As under the New Education Act the Sanitary Authority and the Education Authority will be practically the same body, it would seem that a favourable opportunity presents itself for a closer connection between the two authorities, which should lead to an efficient system of school hygiene, and to a more complete sanitary supervision of the Public Elementary Schools throughout the country. This, however, will depend largely upon the views held by the Committees appointed to carry out the administrative work of the Act. No more important duty will devolve upon the New Education Authority than that of securing

healthy surroundings to the young, who have to spend a considerable time under conditions which may, unless proper precautions are taken, be extremely unfavourable to their health, and at a period of life when they are peculiarly susceptible to the influences of their environment.

It may be well to indicate some of the points to which the attention of the Education Authority might be directed :

(1) The construction of New School Buildings, and the adapting old ones, more especially in connection with the ventilation, lighting, cleansing, sanitary appliances, drainage, water supply and school furniture.

(2) The maintenance of the school premises in a proper sanitary condition, and free from overcrowding.

(3) The regular and systematic chemical and bacteriological examination of the air of schools, in order to maintain as far as possible a fixed standard of purity.

(4) The regular medical examination of the scholars, with a view to the exclusion of those who are ill, or who are likely to communicate disease to others.

(5) An efficient method of dealing with the spread of epidemic diseases amongst scholars, and with the medical certification of absentees from school, having regard to the least possible interference with school attendance.

DIPHTHERIA AND MEMBRANOUS CROUP.—Eighty-eight deaths were registered as due to these diseases, giving an annual death-rate of 0·52 per 1,000 persons living, as compared with 0·37, the average rate in the ten years 1892—1901.

The mortality from Diphtheria throughout the country in 1902 was as follows :—

	Death-rate per 1,000.
England and Wales	0·23
76 Great Towns	0·26
103 Smaller Towns	0·24
Cardiff	0·52

The number of cases of Diphtheria notified during the year was 686, as compared with 724 during the year 1901. The following table shows the number of notifications of cases of Diphtheria and the mortality in each year since 1891 :—

TABLE XVII.

Year.	Population.	No. of Cases Notified.	No. of Deaths.	Death-rate per 1,000.	Mortality per Cent. of Cases Notified.
1891 ...	130,283 ...	67 ...	16 ...	0·21 ...	23·8
1892 ...	132,895 ...	155 ...	36 ...	0·27 ...	23·2
1893 ...	136,168 ...	462 ...	93 ...	0·67 ...	20·1
1894 ...	139,519 ...	326 ...	59 ...	0·42 ...	18·0
1895 ...	142,958 ...	229 ...	46 ...	0·32 ...	20·0
1896 ...	146,479 ...	296 ...	55 ...	0·38 ...	18·6
1897 ...	150,087 ...	512 ...	90 ...	0·59 ...	17·5
1898 ...	153,783 ...	940 ...	129 ...	0·84 ...	12·6
1899 ...	157,414 ...	628 ...	61 ...	0·38 ...	9·7
1900 ...	161,452 ...	706 ...	81 ...	0·50 ...	11·4
1901 ...	165,308 ...	724 ...	78 ...	0·47 ...	10·7
1902 ...	168,909 ...	686 ...	88 ...	0·52 ...	12·8

The case fatality, or the proportion of deaths from diphtheria to cases notified in Cardiff during the year 1902, was at the rate of 12·8 per cent. This comparatively low rate of mortality indicates that the disease was generally of a mild type; 329 persons suffering from diphtheria were removed for isolation and treatment to the Cardiff Sanatorium, the proportion of such cases being 48 per cent. of the cases notified.

The number of notifications in the several Registration Sub-districts ranged from 69 in the Central, 82 in the East, to 178 in the West Sub-district.

The disease occurred chiefly amongst young children, as will be seen from the following table:—

	No. of Cases Notified.	No. of Deaths.	Proportion of Deaths to Cases Notified.
Under 1 year... ...	8	3	37·5 per cent.
1—5 years	181	53	29·2 ,,
5—15 ,, ...	335	31	9·2 ,,
15—25 ,, ...	88	0	0·0 ,,
25—65 ,, ...	73	1	1·3 ,,
65 and upwards ...	1	0	0·0 ,,

From the foregoing table it will be seen that the mortality from diphtheria fell chiefly upon young children, and that 63·6 per cent of the total deaths from diphtheria at all ages occurred amongst those under five years of age. Of the 686 cases of diphtheria notified, 524 or 76·3 per cent. were amongst children under 15 years of age, showing the greater liability to attack at that period of life in which school attendance occupies the larger portion of the time. On previous occasions, I have pointed out the comparatively low rate of fatality amongst those attacked with diphtheria in Cardiff, and have given reasons for this satisfactory characteristic of the disease, as it occurs in this district. It is to be regretted, however, that South Wales continues to experience an excessively high rate of mortality from diphtheria. In the last published Annual Report of the Registrar General (that for the year 1900), the table showing the rates of mortality from diphtheria in the Registration Counties in decreasing order of fatality, gives the second place to South Wales, in which a rate of 694 per million persons living occurred, as compared with 307 the rate in England and Wales (less London), the Registration County of Leicestershire heading the list with a mortality of 904 per million.

Taking the years 1896—99, South Wales has the highest rate of Mortality from diphtheria of any of the Registration Counties of England and Wales, the rate for that period being 612 per million, as compared with 270 the average rate in England and Wales (less London).

I have shown in previous reports that the abnormally high death rate from diphtheria in recent years in South Wales was mainly in those districts in which the increase in the population has been the greatest, namely, Rhondda, Merthyr Tydfil, Aberdare and Cardiff.

The excessive density of the population, the enormous aggregation of young children in the Public Elementary Schools, and the unsatisfactory state of the dwellings in many of the colliery districts, are doubtless the conditions chiefly responsible for this high rate of diphtheria mortality.

DIARRHŒA.—The deaths from diarrhœa including those from epidemic enteritis, numbered 55, being equal to an annual death-rate of 0·32 per 1,000 persons living. The average rate in the ten years 1892-1901 was 0·78 per 1,000.

The death-rate from diarrhœa throughout the country, in the year 1902, was as follows:—

	Death-rate per 1,000.
England and Wales	0·38
76 Great Towns	0·54
103 smaller towns	0·35
Cardiff	0·32

The distribution of diarrhœal mortality in Cardiff, according to the season of the year, and the various age periods, was as follows :—

	Under one Year.	One and under Five Years.	Five and under Fifteen Years	Fifteen and under Twenty-five years.	Twenty-five and under Sixty-five.	Sixty-five years and upwards.	Total.
1st Quarter	—	—	—	—	—	1	1
2nd Quarter	5	3	—	—	—	—	8
3rd Quarter	29	4	—	—	1	2	36
4th Quarter	6	4	—	—	—	—	10
Year 1902	40	11	—	—	1	3	55

From the preceding table it will be seen that of the 55 deaths from diarrhœa during the year 36 occurred in the 3rd quarter of the year, of these, 29 were amongst infants under one year of age.

The relation between the temperature of the air, rainfall, and the diarrhœa mortality during the third quarters of the years 1892—1902, is shown in the following table :—

TABLE XVIII.

Diarrhœal Mortality in the 3rd Quarters of the years 1892—1902.

Year.	Death-rate per 1,000.	Mean Temperature.	Rainfall in inches.
1892 ...	2·3 ...	60°·4 ...	12·4
1893 ...	2·5 ...	61°·8 ...	8·9
1894 ...	0·5 ...	57°·0 ...	10·9
1895 ...	2·5 ...	59°·5 ...	9·9
1896 ...	2·4 ...	58°·9 ...	11·3
1897 ...	2·6 ...	59°·3 ...	14·3
1898 ...	2·6 ...	60°·3 ...	5·8
1899 ...	3·2 ...	63°·3 ...	5·3
1900 ...	1·2 ...	59°·7 ...	6·0
1901 ...	1·4 ...	60°·2 ...	11·1
1902 ...	0·8 ...	57°·5 ...	9·5

From the above it will be seen that a high diarrhœal death-rate is invariably associated with a comparatively hot and dry summer, and a low death-rate with a cool and wet summer. This relation is also shown in the Chart in the Appendix.

ENTERIC FEVER.—Nine deaths were registered from Enteric Fever, as compared with eleven in 1901 and with twenty-five in the year 1900. The deaths were equal to an annual death-rate of 0·05 per 1,000 persons living.

The average annual death-rate from Enteric Fever in Cardiff during the ten years 1892—1901 was 0·11 per 1,000.

The mortality from this disease throughout the country during the year 1902 was as follows:—

	Death-rate per 1,000.
England and Wales	0·13
76 Great Towns	0·15
103 Smaller Towns	0·13
Cardiff	0·05

Amongst the houses in Cardiff in which Enteric Fever occurred 13 were found with defective sanitary arrangements. In each case the defects were remedied under the supervision of the Inspector of Nuisances.

Sixty-nine cases of Enteric Fever were notified to the Medical Officer of Health during the year; of these 47 or 68 per cent. were removed for treatment and isolation to the hospital for infectious diseases.

Of the 69 cases notified 19 contracted the disease outside the town and 5 were secondary cases occurring in the same house.

The following table shows the number of cases of Enteric Fever notified, and the mortality in Cardiff since the adoption of the Infectious Disease Notification Act, 1889:—

TABLE XIX.

Year	Cases notified.	No. of Deaths.	Death-rate per 1,000.	Mortality per cent. of cases notified.
1891 ...	130	26	0·19	20·0
1892 ...	118	24	0·18	20·3
1893 ...	103	18	0·13	17·4
1894 ...	62	7	0·05	11·2
1895 ...	79	14	0·09	17·7
1896 ...	74	13	0·08	17·5
1897 ...	117	20	0·13	17·0
1898 ...	80	17	0·11	21·2
1899 ...	94	19	0·12	20·2
1900 ...	95	25	0·15	26·3
1901 ...	73	11	0·06	15·0
1902 ...	69	9	0·05	13·0

TUBERCULOSIS.—The deaths from all forms of Tuberculosis, including that form which is known by the name of Consumption or Phthisis, amounted to 329 or 11·6 per cent. of the total deaths from all causes in the Borough of Cardiff during the year 1902.

Phthisis alone caused 219 deaths, equal to an annual death-rate of 1·29 per 1,000 persons living; the highest rate of any single disease during the year.

During the ten years 1892-1901 the total number of deaths from phthisis in Cardiff amounted to 2,148, being equal to an annual average death-rate of 1·44 per 1,000 for that period.

The annual death-rate per 1,000 from this disease in Cardiff during the years 1880-1902 is given below :—

TABLE XX.

Year.	Death-rate per 1,000.	Year.	Death-rate per 1,000.
1880 ...	3·21	1892 ...	1·82
1881 ...	2·96	1893 ...	1·68
1882 ...	2·86	1894 ...	1·62
1883 ...	2.67	1895 ...	1·67
1884 ...	2·97	1896 ...	1·38
1885 ...	3·58	1897 ...	1·99
1886 ...	2·78	1898 ...	1·32
1887 ...	2·72	1899 ...	1.32
1888 ...	2·80	1900 ...	1·25
1889 ...	2·79	1901 ...	1·05
1890 ...	3·18	1902 ...	1·29
1891 ...	2·78		

The following preventive measures are at the present time carried out in this district by the Sanitary Authority :—

(1) A system of voluntary notification of cases of phthisis to the Medical Officer of Health by Medical Practitioners with payment of fees, as under the Infectious Disease Notification Act. (2) Upon receipt of the notification, the residence of the patient is visited, a pamphlet containing simple directions for dealing with infectious material, and a short statement of the necessary precautions to be adopted, is left at the house. At the same inquiry any insanitary condition of the dwelling is ascertained and attended to subsequently. (3) In the event of a death from phthisis being registered, a post card is sent to the occupier of the dwelling in which it has occurred, offering disinfection of the premises and infected articles free of charge. (4) Facilities are given in the Public Health Laboratory for the bacteriological examination of sputum of persons suspected to be suffering from Phthisis. (5) Notices have been fixed in all places under the control of the Sanitary Authority, and in many other places of public resort, cautioning people against spitting in such places, and a Bye-law has been framed forbidding under a penalty this dangerous and unpleasant practice.

On the whole the system of voluntary notification of phthisis has been a success and a great deal of good work has been effected thereby. It is useless for a Sanitary Authority to invite the notification of cases of phthisis, unless they are prepared to follow up the information obtained by some useful action. To a very large extent this work has been confined throughout the country to a few large towns, in which the staff in the Sanitary Department is sufficiently large to enable this to be done.

In Cardiff, each case notified has been visited, and the consumptives and their families have been instructed personally and by pamphlets in the precautions necessary for the prevention of the spread of infection. In many cases, insanitary surroundings, or conditions unfavourable to the recovery of the patient, have been removed. When necessary, and in the case of death or removal, disinfection has been carried out. Acting on the recommendation of the Medical Officer of Health, the Sanitary Authority has appointed a Woman Health Visitor, whose duty it will be to assist in carrying on this educational and preventive work in connection with the notification of phthisis, and it is anticipated that great advantage will result from her visits. Besides this immediate and direct advantage to the household visited, the accumulation of facts and materials obtained will be useful for reference and as a guide for future administrative action.

During the year 109 notifications of fresh cases of phthisis were notified to the Medical Officer of Health ; of these 74 were males and 35 females. Of the males 21 were inmates of the

Union Infirmary and 5 were in receipt of outdoor parish relief; of the females 6 were patients of the same Infirmary and 1 was in receipt of outdoor relief. In a few of the cases it was possible to discover the probable source of infection:—for instance, in case No. 36 on the register, 3 members of the same family died from phthisis; in case No. 47 it was stated that several members of the family died from phthisis; in case No. 69 four members of the family died from the same disease; in case No. 92 several members of the family were stated to have died from some form of Tuberculosis; in case No. 103 two members of the family died from phthisis; and in case No. 108 the son of the patient was suffering from the disease.

The following shows the occupation of the several patients as stated at the time of visit:—

Occupations of Patients. Males.		Occupations of Patients. Females.	
No Occupation	14	No Occupation	19
Dock Labourer	14	Housewife	9
Labourer	12	Servant	4
Sailor	4	Scholar	2
Mason	3	Boarding House Keeper ...	1
Fireman	2		
Cabdriver	1		
Shipwright...	1		
Farm Labourer	1		
Working at Flour Mill ...	1		
Plasterer	1		
Railway Porter	1		
Tailor	1		
Newspaper Boy	1		
Lithographer	1		
Slaughterman	1		
Railway Signal Man... ...	1		
Working at Chemical Works...	1		
Working on T. V. Railway ...	1		
Not Stated	12		

TABLE XXI.—The following Tables show the distribution of mortality from the chief zymotic diseases, from phthisis, from diseases of the respiratory organs, and from other causes, in each street in the Borough, during the year 1902 :—

CENTRAL WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Bridge Street and Little Bridge Street	1	...	...	...	...	1	...	...	4	6
Blackweir and Terrace	1	...	...	...	...	...	...	...	...	1
Bute Street and Terrace	1	...	...	...	...	...	...	1	4	6
Carpenter's Arms Court	...	...	...	...	...	...	...	...	1	1
Clytha Place	...	...	...	...	...	...	...	1	1	2
Canal Street	1	...	...	...	...	...	2	...	5	8
Cross Street	...	...	...	...	...	...	...	...	1	1
Castle Street	1	...	...	...	...	...	...	...	...	1
Caroline Street	...	...	...	...	...	1	...	...	1	2
Colum Road and Place	1	...	...	1	...	...	...	1	5	8
Charles Street	...	...	...	...	...	...	...	1	1	2
Duke Street	...	...	...	...	...	...	...	...	1	1
Dumfries Place	...	...	...	...	...	...	...	...	2	2
Eisteddfod Street	...	...	...	...	...	...	...	3	3	6
East Wharf	...	...	...	...	...	...	...	...	1	1
East Terrace	...	...	...	...	...	...	...	...	2	2
Edward's Street, Terrace and Place ...	...	...	...	...	...	...	1	...	4	5
Ebenezer Street	1	...	...	...	...	...	...	...	...	1
Frederick Street	1	...	...	2	...	...	...	1	4	8
French Cottages	...	...	...	...	...	...	...	1	1	1
G.W. Railway Station	...	...	...	...	...	...	...	...	1	1
Gough Street	...	...	...	...	...	...	...	3	3	6
Guildford Street and Crescent ...	...	...	...	1	...	...	...	...	...	1
Havelock Street	1	...	...	...	...	...	...	...	3	4
Homfray Street	...	...	...	...	...	...	1	...	1	2
Hill's Terrace and Street	3	...	...	2	...	...	...	1	2	8
High Street	...	...	...	...	...	...	1	...	1	2
Love Lane	2	...	...	...	...	...	...	1	1	4
Little Frederick Street	1	...	...	...	...	...	1	...	2	4
Millicent Street	...	...	...	...	...	1	...	1	8	10
Mary Ann Street	...	...	...	...	...	...	2	1	3	6
Nazareth House	...	...	...	...	...	...	3	1	8	12
North Road	...	...	...	...	...	...	...	1	4	5
Park Place and Grove	...	...	...	...	...	...	1	...	6	7
Park Street	...	...	...	...	...	...	...	3	...	3
Queen's Street	...	...	...	...	...	...	...	...	1	1
Robert's Court	1	...	...	...	...	...	...	...	...	1
Ruperra Street	...	...	...	...	...	...	1	...	3	4
Rodney Street	...	...	...	...	...	1	...	1	1	4
Railway Terrace	1	...	...	1	...	1	...	...	...	2
Scott Street	...	...	...	...	...	...	2	2	5	9
St. Mary Street	...	...	...	...	...	...	...	1	2	3
St. John's Square	...	...	...	...	...	...	...	...	1	1
St. Andrew's Crescent	...	...	...	...	...	...	...	...	2	2
Station Terrace	...	1	...	...	...	...	1	1	...	3
The Feeder	...	...	...	...	...	...	...	...	1	1
Tredegar Street	1	...	...	...	...	...	...	1	2	4
Taff Vale Railway	...	...	...	...	...	...	...	...	1	1
Thomas' Terrace	...	...	...	...	...	...	...	2	...	2
The Hayes	...	...	...	...	...	...	1	...	...	1
Union Street	7	...	...	...	...	1	1	1	5	15
Vachell's Terrace	...	...	...	...	...	...	...	...	1	1
William's Court	...	...	...	...	...	...	...	...	1	1
Wood Street	...	...	...	...	...	...	1	1	1	3
Windsor Place	...	...	...	...	...	...	...	...	1	1
Working Street	...	...	...	...	...	...	...	...	1	1
Total ...	25	1	...	7	...	6	19	31	112	201

SOUTH WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Angelina Street	...	...	1	...	...	...	...	1	1	3
Allen's Arch	...	...	...	...	...	...	...	...	1	1
Alice Street	...	...	...	...	...	...	...	...	1	1
Adelaide Street and Place ...	...	...	...	1	...	...	1	2	4	8
Bute Esplanade	...	...	...	...	...	...	...	...	1	1
Bute Street and Place ...	...	...	...	...	...	...	1	2	13	16
Crichton Street and Place ...	1	...	...	...	...	...	...	1	1	3
Christina Street	2	...	...	...	...	...	2	2	3	9
Clarence Place and Embankment	...	...	...	...	...	..	...	...	3	3
Collingdon Road	...	...	...	...	...	...	...	...	2	2
Crawshay Street	...	...	...	...	...	...	...	...	2	2
Dudley Street and Place ...	...	...	...	...	...	...	1	1	1	3
East Wharf	...	...	...	...	...	...	...	...	2	2
Evelyn Street	...	...	...	1	...	...	2	1	3	7
Francis Street	...	...	...	...	...	...	1	1	2	4
George Street	...	...	...	...	...	...	...	1	2	3
Glamorgan Canal	...	...	...	...	...	...	...	...	4	4
Harrowby Street	...	...	...	...	...	...	...	...	1	1
Herbert Street	...	...	...	...	...	1	1	1	2	5
Hodges Dock and Row ...	...	...	...	...	...	...	...	..	3	3
Hannah Street	1	...	...	2	...	...	...	..	...	3
Henry Street	...	...	...	...	...	...	...	...	1	1
Hunter Street	...	...	...	...	...	...	2	2	5	9
Hamadryad Hospital ...	...	...	...	...	...	...	...	1	2	3
John Street	...	...	...	...	...	...	...	...	1	1
James Street	...	...	...	...	...	...	...	2	4	6
Loudoun Square	...	...	...	...	...	...	...	1	5	6
Mount Stuart Square ...	...	...	...	...	...	...	...	...	1	1
Margaret Street	...	...	...	...	...	...	...	1	3	4
Maria Street	1	...	...	...	...	...	2	1	5	9
Nelson Street	...	...	...	...	...	...	...	...	1	1
North Church Street ...	1	...	...	...	...	...	1	2	...	4
Old Sea Lock	...	...	...	...	...	...	...	1	1	2
Penarth Road and Terrace ...	...	...	...	...	...	...	1	...	1	2
Peel Street	...	...	...	...	...	...	1	..	3	4
Percy Street	...	...	...	...	...	...	...	1	...	1
Patrick Street	...	...	...	...	...	...	...	...	2	2
Pomeroy Street	3	...	1	1	...	1	1	2	3	12
South Church Street ...	...	...	...	...	...	...	...	1	2	3
South Loudoun Place ...	...	...	...	...	...	...	...	...	1	1
South William Street ...	...	...	...	...	...	...	2	...	3	5
Sophia Street	1	...	...	...	...	...	...	...	3	4
Stuart Street	...	...	...	...	...	...	1	1	4	6
West Church Street ...	...	...	...	...	...	...	...	...	1	1
Windsor Esplanade ...	...	...	...	...	...	...	1	...	2	3
Wharf Street	...	...	...	...	...	...	...	1	...	1
TOTAL	10	...	2	5	...	2	21	30	106	176

CATHAYS WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Allensbank Road and Crescent ...	...	...	...	2	...	...	...	...	5	7
Barracks ...	...	...	...	...	...	1	...	...	4	5
Bruce Street ...	1	...	...	...	...	...	...	...	1	2
Cairns Street ...	2	...	...	2	...	...	...	5	5	14
Coburn Street ...	...	...	1	1	...	...	...	...	5	7
Crwys Road ...	1	...	...	...	...	...	...	...	9	10
Cathays Terrace ...	1	...	...	...	...	...	1	5	12	19
Cogan Terrace ...	...	...	...	1	...	...	1	...	...	2
Cranbrook Street ...	...	...	...	...	...	...	1	...	3	4
Clun Terrace ...	...	...	...	...	...	...	...	1	2	3
Catherine Street ...	...	...	...	...	...	...	...	1	3	4
Dalton Street ...	...	...	...	...	...	...	...	1	1	2
Dogfield Street ...	1	...	1	1	...	...	...	3	2	8
Daniel Street ...	2	...	...	...	...	...	...	1	2	5
Darran Street ...	...	...	...	...	...	...	...	...	1	1
Flora Street ...	1	...	...	...	...	...	...	2	4	7
Fitzroy Street ...	1	...	...	...	...	...	...	...	1	2
Florentia Street ...	...	...	...	...	...	...	1	...	3	4
Fanny Street ...	...	...	...	1	...	1	1	...	...	3
Gladys Street ...	...	...	...	...	...	...	1	1	1	3
Gwennith Street ...	...	...	...	...	...	...	...	2	...	2
Hirwain Street ...	...	...	...	...	...	...	3	...	3	6
Harriett Street and Place ...	...	...	...	2	...	...	...	1	3	6
Llantrisant Street ...	...	...	...	1	...	...	...	4	7	12
Llanishen Street ...	...	...	...	...	...	...	...	...	1	1
Letty Street ...	1	...	...	...	...	...	...	1	2	4
Llantwit Street ...	...	...	...	...	...	...	...	1	...	1
Llanbleddian Gardens ...	...	...	...	...	...	...	...	2	...	2
Minny Street ...	...	...	...	...	...	1	...	1	3	5
Monthermer Road ...	...	...	...	1	...	...	...	1	5	7
Manor Street ...	...	...	...	...	...	...	...	3	2	5
Miskin Street ...	...	...	...	...	...	...	...	...	3	3
Malefant Street ...	1	...	1	...	...	...	...	...	5	7
Mundy Place ...	...	1	...	...	...	...	...	...	3	4
May Street ...	...	...	...	1	...	...	...	1	3	5
Merthyr Street ...	...	...	...	...	...	...	...	3	3	6
Minister Street ...	...	...	...	...	...	...	...	...	2	2
Norman Street ...	...	...	...	...	...	...	...	2	...	2
Richards Street ...	...	...	...	...	...	...	...	2	8	10
Robert Street ...	3	...	2	...	...	...	...	...	3	8
Rumney Terrace ...	...	...	...	...	...	...	...	...	1	1
Spencer Street ...	...	2	...	1	...	...	...	2	3	8
Senghenydd Road and Place ...	...	...	...	...	...	...	...	1	2	3
Salisbury Road ...	1	...	1	...	...	...	...	...	3	5
Thesiger Street ...	...	...	...	...	...	...	...	1	6	7
Treorkey Street ...	...	...	...	...	...	...	...	3	...	3
Tewkesbury Street and Place ...	...	...	...	...	...	...	1	...	4	5
Treherbert Street ...	1	...	...	...	...	...	...	...	2	3
Woodville Road ...	...	...	...	...	...	1	2	3	8	14
Whitchurch Road and Place ...	...	...	...	...	...	...	...	4	5	9
Wyeverne Road ...	...	...	...	...	...	...	...	...	4	4
Total	17	3	6	14	...	4	12	58	158	272

PARK WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Alfred Street	...	...	...	...	...	...	1	1	1	3
Albany Road	...	...	1	...	...	...	...	...	4	5
Arran Street	...	...	...	...	...	...	1	1	4	6
Angus Street	...	...	...	...	...	...	...	...	2	2
Arabella Street	1	...	...	...	...	...	1	1	7	10
Boverton Street	...	...	...	...	...	...	...	...	2	2
Braeval Street	...	...	...	...	...	...	...	...	1	1
Bangor Street and Place	...	...	...	...	...	...	...	...	2	2
Bedford Street and Place	1	2	1	...	...	...	...	2	10	16
Byron Street	...	...	...	2	...	...	1	3	4	10
Castle Road	1	...	...	...	...	...	1	1	7	10
Crwys Road and Place	...	...	...	...	...	...	...	...	4	4
Cyfarthfa Street	...	...	2	1	...	1	...	1	4	9
Crofts Street	1	...	...	...	...	...	...	1	3	5
Convent	...	...	...	...	...	...	1	...	1	2
Clive Place	...	...	...	...	...	...	...	2	2	4
Donald Street	...	...	...	...	...	...	...	5	7	12
Daviot Street	...	...	...	...	...	...	...	1	...	1
Diana Street	...	...	...	...	...	1	1	1	6	9
Essich Street	...	...	...	...	...	...	...	1	1	2
Elm Street	...	...	...	...	...	...	...	...	1	1
Gordon Road	...	...	...	...	...	...	...	...	2	2
Glenroy Street	...	1	...	...	...	...	1	1	6	9
Inverness Place	...	...	...	...	...	...	1	4	7	12
Kincraig Street	...	...	...	...	...	...	...	...	3	3
Keppoch Street	...	...	...	...	...	...	1	1	2	4
Lily Street	...	...	...	...	...	...	...	...	2	2
Lochaber Street	...	...	...	...	...	...	1	...	1	2
Moy Road	1	...	...	...	...	...	...	1	4	6
Milton Street	1	...	...	1	...	...	...	...	3	5
Mackintosh Place	...	...	...	...	...	1	...	4	3	8
Ninian Road	...	...	...	...	...	...	...	1	...	1
Northcote Street	...	...	...	...	...	...	...	...	2	2
Newport Road	...	...	...	...	...	...	...	...	1	1
Oxford Street	...	...	...	...	...	...	1	2	4	7
Plasnewydd Road and Place	1	...	...	...	...	...	...	1	3	5
Russell Street	...	...	...	...	...	...	...	3	1	4
Rose Street	...	...	...	...	...	...	...	1	4	5
Richmond Road and Crescent	...	...	...	...	...	...	...	1	8	9
St. Peter Street	...	...	...	...	...	...	...	...	1	1
Strathnairn Street	...	...	1	...	...	...	...	4	8	13
Shakespeare Street	...	...	...	...	...	...	1	...	1	2
Treharris Street	1	...	1	2	...	...	1	1	9	15
Talworth Street	...	...	...	...	...	...	1	...	3	4
Upper Kincraig Street	...	...	...	...	...	...	...	1	1	2
Vere Street	...	...	...	...	...	...	...	...	1	1
Violet Row	...	...	...	...	...	...	...	1	...	1
Wordsworth Avenue	...	...	...	...	...	...	...	...	1	1
Wellfield Road	...	...	...	...	...	...	...	...	4	4
Total	8	3	6	6	...	3	15	48	158	247

ADAMSDOWN WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Augusta Street	...	...	...	...	...	1	...	2	3	6
Ascog Street	...	...	...	...	...	...	...	2	2	4
Adams Street	1	...	...	...	...	...	...	2	6	9
Adamsdown Square and Place	...	...	...	...	...	...	...	...	2	2
Buzzard Street	1	...	...	...	...	...	1	3	1	6
Bristol Channel	...	...	...	...	...	...	...	...	2	2
Barry Roads	...	...	...	...	...	...	...	...	1	1
Comet Street	...	...	...	...	...	...	...	1	3	4
Cycle Street	1	...	...	...	...	1	1	...	1	4
Clyde Street	...	...	...	...	...	...	...	...	1	1
Cab	...	...	...	...	...	...	...	...	1	1
Cumnock Place and Terrace	...	...	...	...	...	...	...	1	1	2
Cumrae Street and Place	...	...	...	...	...	...	1	...	2	3
Constellation Street	1	...	...	...	...	...	...	2	1	4
Copper Street	...	...	...	...	...	...	...	1	...	1
Duffryn Street	1	...	...	...	...	...	...	1	3	5
Davis Street	...	...	...	...	...	...	...	...	4	4
Dowlais Works	...	...	...	...	...	...	...	...	1	1
Eclipse Street	...	1	...	...	...	...	...	1	8	10
East Dock	...	...	...	...	...	...	...	...	8	8
Ellen Street	2	...	...	...	...	...	2	3	1	8
Fitzalan Road and Place	...	...	...	...	...	...	...	...	3	3
Ferry Tug	...	...	...	...	...	...	...	...	1	1
Gaol	...	...	...	...	...	...	1	...	1	2
Galston Street and Place	...	...	...	...	...	...	1	...	2	3
Garth Street and Court	...	...	...	...	...	...	...	1	2	3
Gold Street	...	...	...	...	...	...	...	1	1	2
Glossop Road	...	...	...	...	...	...	...	...	2	2
Howard Terrace and Gardens	...	...	...	...	...	...	...	...	3	3
Inchmarnock Street	...	...	...	...	...	...	...	...	2	2
Ivor Street	...	...	...	...	...	...	...	2	3	5
Iron Street	1	...	...	1	...	...	...	3	5	10
Infirmary	...	...	1	...	...	...	2	7	80	90
Kingarth Street	1	...	...	...	...	...	...	...	...	1
Kilcattan Street	...	...	...	...	...	...	...	...	...	1
Kerrycroy Street	...	...	...	...	...	...	...	...	1	1
Longcross Street	...	1	...	...	...	...	...	...	...	1
Lead Street	...	...	...	...	...	...	...	1	...	1
Lady Margaret Terrace	...	...	...	...	...	...	...	1	1	2
Meteor Street	...	...	...	...	...	...	...	1	3	4
Metal Street	...	...	...	...	...	...	...	...	1	1
Moon Street	...	...	...	...	...	...	...	1	1	2
Moira Street Place and Terrace	1	...	...	...	...	1	...	3	10	15
Morgan Street	...	...	...	...	...	...	...	...	2	2
North William Street	1	...	...	...	...	...	1	...	3	5
North Luton Street and Place	...	...	...	...	...	...	...	...	1	1
New Bute Dock Huts	...	...	...	...	...	...	...	...	2	2
Newport Road	...	...	...	...	...	...	...	...	2	2
Orbit Street	...	...	...	...	...	...	...	...	1	2
Platinum Street	...	...	...	...	...	...	...	1	...	1
Pellett Street	2	...	...	...	...	...	1	1	4	8
Planet Street	...	...	...	...	...	...	...	1	3	4
Pendoylan Street	2	...	...	...	...	...	1	3	...	6
Roland Street	1	...	...	...	...	...	...	1	5	7
Roath Dock	...	...	...	...	...	...	...	...	2	2
South Luton Place	...	...	...	...	...	...	...	1	2	3
Sandon Place and Street	...	...	...	...	...	...	1	5	2	8
Sun Street	...	...	...	...	...	...	...	1	1	2
Sanquahar Street	...	...	...	...	...	...	...	1	3	4
Silver Street	...	...	...	...	...	...	1	...	...	1
System Street	1	...	...	...	...	...	...	3	4	8
Taff Street	1	...	...	1	...	1	1	2	3	8
Tin Street	...	...	...	...	...	...	...	3	...	3
Tyndall Street	...	...	1	...	...	...	2	3	7	13
Victoria Street	1	...	...	...	...	...	...	1	1	3
Windsor Road	...	...	...	...	...	...	...	...	1	1
West Luton Place	...	...	...	...	...	...	...	...	1	1
West Dock	...	...	...	...	...	...	...	...	6	6
Total	19	2	2	2	...	3	17	69	230	344

RIVERSIDE WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases	Other Causes.	TOTAL.
Ann Street	...	...	...	1	...	...	...	...	3	4
Beauchamp Street	...	...	...	...	...	...	...	1	1	2
Brook Street	...	...	...	...	...	1	1	1	1	4
Berthwin Street	...	...	...	...	...	...	...	...	1	1
Blackstone Street	...	...	...	...	...	1	...	...	1	2
Cowbridge Road	...	...	...	...	...	...	4	1	7	12
Craddock Street	...	...	...	...	...	...	3	...	10	13
Clare Road, Street, and Gardens	...	...	...	...	...	...	...	...	3	3
Cathedral Road	...	...	...	...	...	1	1	2	4	8
Cathedral Road (Lower)	...	...	...	2	...	...	1	...	2	5
Despenser Gardens and Street	...	...	...	...	...	...	...	...	3	3
De Burgh Street	...	...	...	...	...	...	...	...	4	4
East Street	...	...	...	...	...	...	...	3	1	4
Eldon Road	...	...	...	...	...	1	1	1	5	8
Fitzhammon Embankment	...	...	...	...	...	...	...	1	2	3
Gloucester Street	...	...	...	...	...	...	...	...	3	3
Green Street	...	...	...	...	...	...	...	1	1	2
Halket Street	...	2	...	...	...	...	2	...	...	4
Hamilton Street	...	...	...	...	...	...	...	...	4	4
Iestyn Street and Avenue	...	...	...	3	...	...	...	...	...	3
King's Road	...	...	...	...	...	1	2	4	7	14
Lewis Street	...	...	...	...	...	...	...	1	2	3
Mortimer Road	...	...	...	...	...	...	1	3	1	5
Machen Place	...	...	...	...	...	...	1	1	1	3
Mansfield Street	...	...	...	...	...	...	...	1	1	2
Mark Street	...	...	...	...	...	...	1	...	1	2
Mandeville Street	...	...	...	...	...	...	1	...	...	1
North Morgan Street	...	1	...	...	...	...	...	...	1	2
Neville Street and Place	...	...	...	...	...	...	3	1	5	9
Pontcanna Street and Place	...	...	...	...	...	...	1	...	1	2
Plantagenet Street	...	...	...	...	...	...	...	1	5	6
Picton Place	...	...	...	1	...	...	...	1	1	3
Plasturton Avenue and Place	...	...	...	...	...	...	1	3	1	5
Plasturton Gardens	...	...	...	...	...	...	...	...	1	1
Pitman Street	...	...	...	...	...	...	...	...	1	1
Rennie Street	...	...	...	...	...	...	...	...	1	1
Ryder Street	...	...	...	...	...	...	...	...	3	3
Rawdon Place	...	...	...	...	...	...	1	...	1	2
Sneaton Street	...	...	...	...	...	...	...	2	2	4
Severn Road	...	...	...	...	...	...	1	3	2	6
South Morgan Street	...	...	...	...	...	...	...	1	1	2
Sneyd Street	...	...	...	...	...	...	...	...	3	3
Teilo Street	...	...	...	...	...	...	1	...	1	2
Telford Street	...	...	...	...	...	...	...	1	...	1
Talbot Street	...	...	...	...	...	...	...	...	3	3
Tudor Road	...	1	...	...	...	1	2	1	2	7
Union Workhouse	...	...	...	...	...	1	44	36	154	235
Wellington Street	...	1	...	...	...	...	2	2	2	7
Wyndham Crescent	...	...	...	...	...	...	...	2	2	4
Wyndham Road	...	...	...	...	...	...	1	1	2	4
Wyndham Street and Place	...	...	...	...	...	...	...	3	8	11
Wells Street	...	...	1	...	...	1	...	...	3	5
TOTAL	5	1	...	7	...	8	76	79	275	451

CANTON WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Disease.	Other Causes.	Total.
Atlas Road and Place	...	...	...	1	...	...	...	...	2	3
Aldsworth Road	...	...	...	1	...	...	...	1	3	5
Anglesea Street	...	...	...	...	...	...	...	...	3	3
Alexandra Road	...	...	...	1	...	2	...	...	4	7
Albert Street	...	1	1	...	...	...	...	...	5	7
Brunswick Street	...	...	...	...	...	...	...	...	2	2
Brecon Street	...	...	...	...	...	...	...	...	3	3
Bassett Street	...	...	...	...	...	...	...	...	1	1
Beda Road	...	1	...	...	...	...	1	...	4	6
Bloom Street	...	...	...	...	...	...	...	...	1	1
Caermarthen Street	...	...	...	...	...	...	...	1	1	2
Clive Road	...	...	...	1	...	...	...	3	9	13
Church Road	...	...	...	...	...	...	...	...	1	1
Chancery Lane	2	...	...	...	...	2	...	...	2	6
Cowbridge Road	...	...	...	...	...	...	1	3	12	16
Cardigan Street	...	...	...	...	...	...	...	...	3	3
Coke Street	...	...	...	...	...	...	...	...	1	1
Cumberland Street	...	...	...	...	...	...	...	...	1	1
Conway Road	...	...	...	1	...	...	1	...	4	6
Daisy Street	1	...	...	...	...	...	...	...	2	3
Denton Road	...	...	...	...	...	...	...	...	4	4
Egerton Street	...	...	...	...	...	...	...	...	5	5
Eldon Road	...	...	...	2	...	...	...	1	6	9
Ethel Street	4	1	..	4	...	1	...	5	5	20
Fern Street	...	...	...	1	...	...	...	...	1	2
Forrest Road	1	1	...	...	...	...	1	1	2	6
Grosvenor Road	...	...	...	...	...	1	...	...	1	2
Glynne Street	...	...	...	...	...	...	...	...	6	6
Glamorgan Street	...	...	...	1	...	1	1	...	1	4
Harvey Street	1	...	...	...	...	...	...	1	3	5
Gray Street	...	...	...	...	...	...	1	3	5	9
Ivy Street	...	...	...	...	...	1	1	1	1	4
Kingsland Road	...	...	...	...	...	...	...	1	...	1
Lansdowne Road	...	...	...	...	...	...	...	1	5	6
Leckwith Road and Place	...	...	2	...	...	...	1	1	4	8
Lyndhurst Street	1	...	...	1	...	...	...	1	1	4
Littleton Street	1	...	...	...	...	...	1	1	1	4
Llandaff Road	...	...	...	...	...	...	...	2	4	6
Lionel Road	3	...	...	...	...	...	...	...	2	5
Llanfair Road	...	...	...	...	...	...	...	...	4	4
Loftus Street	1	...	...	...	...	...	...	...	1	2
Lincoln Street	1	...	...	...	...	...	...	...	4	5
Market Road	...	...	...	...	...	...	...	2	2	4
Meadow Street	...	...	...	...	...	...	...	...	...	1
Major Road	...	...	...	...	...	...	...	...	2	2
Nottingham Street	...	...	...	...	...	...	1	2	1	4
Picton Place	...	...	...	...	...	...	...	2	...	2
Philip Street	...	...	...	...	...	...	...	...	...	1
Pontcanna Street, Terrace, and Place	1	...	...	...	...	...	...	1	1	3
Parry Street	...	...	...	...	...	...	...	1	...	1
Penlline Road	1	...	...	...	...	...	...	1	...	2
Penypecl Road	...	...	...	...	...	...	...	...	5	5
Pembroke Road	...	...	...	...	...	...	...	...	2	2
Rolls Street	...	...	...	...	...	...	...	1	...	1
Railway Terrace	...	...	...	...	...	...	...	...	1	1
Rectory Road	...	...	...	...	...	...	...	2	...	2
Radnor Road	...	...	...	1	...	...	1	...	2	4
Romilly Road and Crescent	...	...	...	1	...	1	1	3	4	10
Surrey Street	...	...	...	...	...	...	...	...	1	1
Stag Terrace	1	...	...	...	...	...	...	...	...	1
St. John's Cresent	...	...	...	...	...	...	...	1	1	1
Sloper Road	...	...	...	...	...	...	...	...	1	1

CANTON WARD.—Continued.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Severn Road	...	...	...	...	...	...	...	1	1	2
Springfield Place	1	...	...	...	...	...	...	...	5	6
Tintern Street	...	...	...	...	...	...	...	...	1	1
Thurston Street	...	...	...	...	...	...	...	...	1	1
Theobald Road	...	...	...	...	...	...	...	1	1	2
Thornhill Street	...	..	...	1	...	1	...	...	...	2
Westmoreland Street	...	...	..	...	...	...	...	2	...	2
Wellington Street	...	...	...	...	...	...	...	...	1	1
Westbury Terrace	...	...	...	...	...	...	...	1	...	1
William Street	...	...	...	...	...	...	...	...	1	1
Welby Road	...	...	...	...	...	...	...	2	1	3
Total ...	22	3	2	17	...	10	11	52	165	282

ROATH WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Agate Street	...	...	...	...	...	...	...	...	1	1
Arthur Street	1	...	...	...	...	...	1	...	3	5
Albany Road	...	...	...	...	...	...	...	...	1	1
Bradley Street	4	...	...	1	...	...	...	2	1	8
Bertram Street	2	...	...	...	...	...	2	1	2	7
Beresford Road	...	...	...	...	...	...	...	...	2	2
Blanche Street	...	...	...	3	...	...	1	1	2	7
Broadway	...	...	...	...	...	...	4	2	7	13
Connaught Road	...	...	...	...	...	...	...	...	4	4
Crofts Street	1	1	...	...	...	...	...	...	...	2
Cecil Street and Crescent ...	3	...	...	1	...	...	...	1	3	8
Clifton Street	...	...	...	...	...	...	...	1	2	3
Cottrell Road	...	...	...	...	...	...	...	1	2	3
Claude Road and Place	...	...	...	...	...	...	...	...	7	7
Cyril Crescent	...	...	...	1	...	...	...	...	...	1
Cyfarthfa Street	1	...	...	...	...	1	...	1	1	4
Diamond Street	...	...	...	...	...	...	1	...	2	3
Emerald Street	2	...	1	...	...	...	...	1	1	5
Elm Street	...	...	...	...	...	...	...	1	1	1
Fox Street	...	...	...	...	...	...	...	1	2	3
Fort Street	1	...	...	...	...	...	...	...	...	1
Harold Street	...	...	...	1	...	...	...	...	5	6
Helen Street	3	...	...	2	...	1	...	2	5	13
Marlborough Road	...	...	...	...	...	...	...	...	1	1
Nora Street	...	...	...	...	...	1	2	3	8	14
Newport Road	...	...	...	...	...	...	...	...	4	4
Oakfield Street	...	...	...	...	...	...	1	...	8	9
Partridge Road	...	...	...	...	...	...	...	1	4	5
Pengam	...	...	...	...	...	...	...	...	1	1
Pearl Street, Crescent, and Place ...	2	1	...	2	...	...	2	6	10	23
Penylan Road	...	...	...	...	...	...	...	...	2	2
Ruby Street	...	...	...	...	...	...	...	2	10	12
Richards Terrace	...	...	...	...	...	...	..	1	...	1
Sapphire Street	...	...	...	...	...	...	...	2	5	7
Sandringham Road	...	...	...	...	...	...	...	...	1	1
Spring Gardens Place, and Terrace ...	...	...	...	...	...	...	...	2	1	3
Stacey Road	...	...	...	...	...	...	3	1	4	8
Snipe Street	...	...	...	...	...	...	...	...	1	1
Theodora Street	1	...	...	1	...	...	...	3	4	9
Tyler Street	...	...	...	...	...	...	...	...	1	1
Topaz Street	...	...	...	...	...	...	1	...	4	5
Wellfield Place and Road	...	...	...	...	...	...	...	...	1	1
Total ...	21	1	2	12	—	3	18	35	124	216

GRANGETOWN WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Allerton Street	...	...	...	...	...	...	2	4	6	
Amherst Street	...	...	...	...	...	...	...	5	5	
Avoca Place	...	...	...	1	...	...	...	...	1	
Bromfield Street	...	...	...	...	...	...	1	1	3	
Bedwas Street	...	...	...	...	...	...	...	1	1	
Blaenclydach Street	...	...	...	...	...	...	1	...	2	3
Bradford Street	1	...	...	...	...	...	1	1	3	
Bishop Street	...	...	1	1	...	...	...	...	2	
Bromsgrove Street	1	...	...	...	...	...	...	3	4	
Corporation Road	1	...	2	...	...	...	1	2	6	12
Clive Street	...	1	2	...	...	1	...	2	11	17
Cambridge Street	...	...	1	...	...	...	...	...	2	3
Compton Street	1	...	...	...	...	...	...	...	1	2
Cornwall Road	3	...	2	...	...	1	...	2	5	13
Clare Road	...	...	...	1	...	...	2	3	6	12
Coedcae Street	...	...	1	...	...	...	1	1	3	6
Cynmer Street	...	...	...	...	...	...	...	...	2	2
Court Road	1	...	1	...	...	...	...	2	5	9
Chester Street and Place	1	2	...	...	...	1	...	...	4	8
Dorset Street and Place	1	...	...	...	...	1	...	1	2	5
Devon Street and Place	1	...	...	2	...	...	1	1	1	5
Durham Street	...	...	...	...	...	...	...	1	1	2
Ely Harbour	...	...	...	...	...	...	...	...	1	1
Earl Street	...	1	...	...	...	...	...	3	4	
Ferry Road	...	...	...	2	...	...	2	2	6	
Ferndale Street	...	...	...	...	...	...	...	1	1	
Grange Gardens	...	...	...	...	...	...	1	...	4	5
Holmesdale Street and Terrace	...	...	...	1	...	...	2	1	6	10
Hewell Street	...	...	...	...	...	1	...	1	2	4
Hereford Street	...	...	...	...	...	...	1	5	6	
Knole Street	1	...	1	...	...	...	2	3	7	
Kent Street	...	...	...	...	...	...	1	4	3	8
Llanbradach Street	...	...	...	...	...	...	...	1	...	1
Lucknow Street	...	...	...	...	...	...	...	...	1	1
Llanmaes Street	...	...	1	...	...	1	...	1	3	6
Ludlow Street	...	...	...	...	...	...	...	1	...	1
Monmouth Street	...	...	...	...	...	...	...	...	2	2
Maitland Place	...	...	...	...	...	1	...	...	...	1
Madras Street	1	...	...	...	...	...	1	...	2	4
Newport Street	...	...	...	...	...	1	...	...	1	2
North Street	2	...	...	...	...	...	1	1	4	
North Clive Street	1	...	...	...	...	...	1	...	2	4
Oakley Street	...	...	...	...	...	...	...	2	3	5
Penhevad Street	...	...	...	...	...	...	...	4	4	8
Penarth Road	...	...	...	1	...	...	5	18	24	
Paget Street	...	...	...	...	...	...	3	3	6	
Redlaver Street	...	...	...	...	...	2	...	1	...	3
Rutland Street	...	...	2	...	...	...	...	...	1	3
Sevenoaks Street	...	...	...	...	...	...	1	...	4	5
St. Fagan Street	...	...	1	...	...	...	...	2	3	6
Somerset Street	...	...	2	...	...	...	...	...	3	5
Stoughton Street	1	...	...	...	...	...	...	3	3	7
Saltmead Road	...	...	2	...	...	...	...	...	3	5
Stockland Street	...	...	...	...	...	...	...	2	3	5
Sanatorium	...	15	43	...	8	...	...	1	...	67
Tynant Street	...	...	...	1	...	...	...	...	...	1
Thomas Street	1	...	...	...	...	2	...	1	2	6
Taff Embankment	...	...	...	...	...	...	...	...	2	2
Wedmore Road	...	...	...	1	...	1	1	...	4	7
Warwick Street and Place	1	...	...	...	...	...	...	1	...	2
York Place	...	...	...	...	...	...	1	...	1	2
Total	19	19	62	11	8	13	15	59	165	371

SPLOTT WARD.

NAME OF STREET.	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Phthisis.	Respiratory Diseases.	Other Causes.	Total.
Aberdovey Street	2	...	...	...	...	...	1	...	1	4
Adeline Street	2	...	...	2	...	...	1	2	2	9
Aberystwyth Street	1	...	...	1	...	...	...	...	3	5
Burnaby Street	...	...	...	...	...	...	...	...	3	3
Bridgend Street	1	...	1	...	...	1	...	2	1	6
Cameron Street	...	...	...	...	...	...	1	...	1	2
Coveney Street	...	...	...	...	...	...	1	...	1	2
Caerphilly Street	2	...	...	...	...	...	...	...	7	9
Cab	...	...	...	...	...	...	...	...	1	1
Cornelia Street	1	...	...	...	...	...	...	1	2	4
Carlisle Street	...	...	...	...	...	...	1	5	6	12
Elaine Street	1	...	...	...	...	...	...	...	...	1
Enid Street	...	...	...	...	...	...	1	...	2	3
Eyre Street	...	...	...	...	...	...	...	...	1	1
Habershon Street and Place	2	...	...	5	...	...	...	5	8	20
Howard Street and Place	...	...	...	...	...	...	...	1	1	2
Hinton Street	...	...	...	...	...	...	...	...	1	1
Janet Street	...	...	...	...	...	...	1	...	6	7
Lascelles Road	...	...	...	...	...	...	...	...	1	1
Layard Street	1	...	...	...	...	...	...	3	4	8
Llanelly Street	2	...	1	...	...	...	1	...	2	6
Moorland Road	...	1	...	2	...	...	...	3	9	15
Marion Street	1	...	...	...	...	...	...	...	3	4
Milford Street	2	...	...	1	...	...	...	2	3	8
Menelaus Street	4	...	...	...	...	...	...	...	...	4
Ordell Street	...	1	...	...	...	1	1	1	8	12
Portmanmoor Road	...	...	...	...	...	...	...	4	6	10
Pengam Farm	...	...	...	...	...	...	...	1	...	1
Pontypridd Street	2	...	...	1	...	1	1	2	3	10
Railway Street and Crescent	5	...	...	...	1	...	1	7	13	27
Swinton Street	...	1	...	...	...	...	...	...	1	2
Seymour Street	...	...	...	...	...	...	...	2	7	9
Splott Road	1	...	...	1	...	...	2	1	6	11
Singleton Road	...	...	...	...	...	...	...	...	3	3
Swansea Street and Terrace	...	...	...	...	...	...	...	2	5	7
Tenby Street	...	...	...	...	...	...	1	...	1	2
Timber Yard	...	...	...	...	...	...	...	...	1	1
Walker Road	2	...	3	...	...	...	...	...	2	7
Wimborne Street	6	...	1	...	...	...	1	4	6	18
Wilson Street	...	...	...	1	...	...	...	...	2	3
TOTAL	38	3	6	14	1	3	15	48	133	261

CARDIFF SANATORIUM.

The following Report of the Medical Superintendent shows that during the year 1902 1,237 cases of infectious disease were under treatment, as compared with 1,177 in the year 1901:—

Report for the Year 1902.	AGES.							
	0 to 5 years.	5 to 15 years.	15 to 25 years.	25 to 35 years.	35 to 45 years.	45 to 55 years.	55 to 65 years.	Totals.
I.—Remaining in Hospital on 31st December, 1901:—								
Scarlet Fever	36	68	15	...	...	...	...	119
Enteric Fever	...	...	...	2	...	...	...	2
Diphtheria	13	9	3	4	...	...	...	29
Small Pox	...	...	...	...	...	...	...	...
Total ...	49	77	18	6	...	...	...	150
II.—Admitted during the year 1902.								
Scarlet Fever	192	411	76	25	7	...	...	711
Enteric Fever	...	15	16	10	5	4	...	50
Diphtheria	82	184	39	12	6	1	...	324
Small Pox	...	...	...	1	1	...	...	2
Total ...	274	610	131	48	19	5	...	1087
Total under treatment in 1902.	323	687	149	54	19	5	...	1237
III.—Of the above there were discharged (*a*) *Recovered*:—								
Scarlet Fever	193	405	76	23	5	...	...	702
Enteric Fever	...	10	14	8	3	4	...	39
Diphtheria	67	159	40	16	6	1	...	289
Small Pox	...	...	...	...	1	...	...	1
Total ...	260	574	130	47	15	5	...	1031
(*b*) *Died*:—								
Scarlet Fever	10	3	1	...	...	...	...	14
Enteric Fever	...	2	2	2	2	...	...	8
Diphtheria	23	21	...	...	...	...	...	44
Small Pox	...	...	...	...	...	...	...	...
Total ...	33	26	3	2	2	...	...	66
IV.—Remaining in Hospital December 1902.								
Scarlet Fever	25	71	14	2	2	...	...	114
Enteric Fever	...	3	...	2	...	...	...	5
Diphtheria	5	13	2	...	...	..	...	20
Small Pox	...	...	..	1	...	...	...	1
Total ...	30	87	16	5	2	...	...	140
Total under treatment in 1902.	323	687	149	54	19	5	...	1237

B. W. BROAD, M.B.,
Medical Superintendent.

CARDIFF AND COUNTY PUBLIC HEALTH LABORATORY.

The following remarks and tables extracted from the Annual Report of Dr. W. G. Savage to the Laboratory Joint Committee, show the work done in the Laboratory during the year 1902 :—

TABLE I.

Specimens and Samples examined during 1902.

Suspected Diphtheria	217
,, Typhoid Fever (serum-diagnosis)	114
Sputum for Tubercle Bacilli	263
Examination for Special Organisms :—	
(of Glanders, 3 ; Gonococcus, 12)	15
Pathological examination of Growths	22
Examination of Urine (Chemical and Microscopic) ...	85
,, ,, (Bacteriological)	12
Examination of Milk :—	
(for Typhoid Bacilli, 2 ; for general evidence of contamination, 9)	11
(Sterilized Milk, special investigation)	33
Ice Cream, Bacteriological Examination	1
Diseased Meat	52
Blood—Pathological Examination	27
,, Examination for Carbon Monoxide	3
Examination of Foods, etc., for Arsenic	9
Bacteriological Examinations of Pus (Tubercle Bacilli, etc.) ..	6
Other Pathological Fluids :—	
(Stomach Contents, 6 ; Pleural Effusion, 4 ; Ascetic Fluid, 1 ; Pancreatic Cyst Fluid, 1 ; Hydatic Cyst Fluid, 1) ...	13
Other Pathological and Chemical Examinations	12
Bacteriological Examination of Soils	14
Chemical ,, ,, ...	8
Cat (suspected Diphtheria)	1
Oils and Boiler Composition, Chemical Examination ...	10
Rats examined for Plague	11
Investigation of suspected cases of Plague	3
Drinking Water—Bacteriological Examination	298
,, Chemical Analysis	218
Sewage and Sewage Effluents	49
Tinplate Effluents	75
Total	1,582

From Table I. it will be seen that the total number of specimens examined was 1582, During 1901 the number of samples examined was 1,528. In Table. II the chief differences between the two years are shown.

TABLE II.

Comparison between the specimens received in 1901 and 1902 :—

Nature of Examination.	1901	1902	Increase.	Decrease.
Suspected Diphtheria	391	217	—	174
,, Typhoid Fever	122	114	—	8
Sputum for Tubercle Bacilli	197	263	66	—
Waters—Bacteriological Examination ...	282	298	16	—
,, —Chemical Analysis	250	218	—	32
Bacteriological Examination of Milk ...	41	41	—	—
Sewage and Effluent Examinations ...	26	124	98	—
Diseased Meat	33	52	19	—
Other Examinations	186	255	69	—
Total	1528	1582	Increase on	year 54

As shewn in Table II. there has been a slight increase in the total number of specimens and samples received over the previous year.

There has been a marked decrease in the number of suspected Diphtheria examinations made, and a slight decrease in the number of Chemical Analyses of Water made. Nearly all the other figures show an increase, many a marked increase.

The decline in the number of suspected Diphtheria cases examined is probably in part due to a diminished incidence of the disease during 1902 in Cardiff and the Administrative County. There is also no doubt that the facilities of the Laboratory for this class of work are by no means adequately taken advantage of. The decrease was chiefly in the earlier months of the year. A mere numerical enumeration, as pointed out in last year's report, cannot be taken as an accurate estimate of work done, owing to the great differences in the work required for different classes of specimens and investigations.

There has been a marked increase in the actual amount of work done in the Laboratory, for the decrease is almost entirely in the Diphtheria examinations, that is, in work which is not of a prolonged nature, while the increase is for the most part in work of a protracted, and often laborious character, such as sewage and sewage effluent examinations, soil examinations, etc.

In Table III. the results of the examinations in connection with the diagnosis of Diphtheria, Typhoid Fever, and the examination of Sputum for the Tubercle Bacillus are briefly stated.

TABLE III.

Nature of Examination.	No. of Positive Results.	No. of Negative Results.	Total.
Suspected Diphtheria	62	155	217
,, Typhoid Fever	44	70	114
Sputum for Tubercle Bacilli ...	124	139	263

The percentage of positive results were respectively 28·6 (Diphtheria), 38·6 (Typhoid Fever), and 47·1 (Tubercle Bacilli), as compared with 20·2, 50·8, and 44·6 respectively for 1901.

Table IV. gives the number of specimens received from Cardiff and the County respectively. The samples from Swansea are included in the County figures.

In this Table the results are divided into waters, sewages (including sewages and effluents), and specimens, the latter including all other examinations.

TABLE IV.

Source.	Waters Examined.	Sewages Examined.	Specimens.	Total.
Cardiff	144	...	604	748
Administrative County	372	124	338	834
Total for 1902	516	124	942	1,582

PRELIMINARY REPORT ON THE NATURAL PURIFICATION OF MADE SOILS.

At the request of the Health and Port Sanitary Committee, the Medical Officer of Health presented the following report relating to tipping refuse on certain land within the Borough, and upon which the owners were anxious to erect dwelling houses:—

"At a meeting of the Health and Port Sanitary Committee held on the 22nd October, 1901, it was resolved 'that the Medical Officer of Health be desired to report respecting the refuse deposited in Roath becoming innocuous.' Assuming from the terms of the above resolution that the Committee desire to be informed as to the probable date when certain land in the Roath Ward, recently used for tipping scavenging and house refuse, will be in a condition suitable for a building site, I beg to report as follows:—

Organic animal and vegetable refuse deposited on land undergoes a gradual process of decomposition and purification, the rapidity with which the process is carried on depending upon the nature of the soil, being much more rapid in open and porous soils to which there is a comparatively free access of air and in which effectual drainage may take place, than in an impervious soil such as clay, but in any case it is impossible to give any exact time limit for the complete purification of such land.

Some years ago some experiments having for their object to ascertain what the effect of time had been on the organic matters which, together with cinder refuse, had been used to fill up inequalities in the ground, were made by Professor Burdon Sanderson and the late Professor Parkes during an investigation into the sanitary condition of Liverpool, and in their report it is stated that 'the process of decay of all the most easily destructible matters, including vegetable refuse is completed in three years, while in the case of wood and woollen cloth, the process was much prolonged.' It is further stated that 'the vegetable and animal matter contained in the cinder refuse decays and disappears in about three years, and is virtually innocuous before that time.'

The conditions under which these experiments were made do not correspond with those which obtain in the site to which the present report refers. In the experiments referred to the oxidation and purification of the organic matter were facilitated by the nature of the soil which gave access to air and was suitable for drainage. In the excavation at Roath the soil is a stiff impervious clay, and the refuse has been deposited in a basin holding considerable quantities of water and without any possibility of free drainage.

A very much longer period would therefore elapse before the soil would be rendered innocuous and fit for building purposes.

The bye-laws in force in this district with respect to new streets and buildings do not contain any provision relating to the subject of this report, but the matter is dealt with in the Public Health Acts Amendment Act, 1890, which in section 25 (1) enacts that 'It shall not be lawful to erect a new building on any ground which has been filled up with any matter impregnated with fæcal, animal or vegetable matter, or upon which any such matter has been deposited unless and until such matter shall have been properly removed by excavation or otherwise, or shall have been rendered or have become innocuous.'

Under the circumstances I am of opinion that it would be impossible now to fix any time when this land will form a suitable and sanitary building site, and that it would be inadvisable to enter into any agreement in advance with anyone specifying any definite period when building could take place upon it.

Having regard to the importance of this matter in this district in which refuse and scavenging matter has been deposited in several places at various times, I would suggest to your Committee the advisability of a thorough investigation, having for its object to ascertain the extent to which purification has taken place in these places used as refuse tips, having regard in each case to the length of time which has elapsed since refuse was last deposited.

An investigation of this kind could I think be carried out with advantage in the Cardiff and County Public Health Laboratory."

The Committee subsequently passed the following resolution, "That the Medical Officer of Health arrange with the Cardiff and County Public Health Laboratory for a thorough investigation as mentioned in the foregoing Report, and that he report thereon in due course."

Acting upon this resolution I communicated with Dr. W. G. Savage, the Bacteriologist of the Public Health Laboratory, and gave him the necessary instructions, and have now to submit to you the following preliminary report containing the results of his investigations.

The investigation was to comprise a bacteriological and chemical examination of material deposited at various dates upon land within the Borough; the object being to ascertain the length of time, after the deposit of refuse, when the process of decay is complete and when the material becomes innocuous.

Dr. Savage was assisted in the chemical part of the work by Mr. J. H. Sugden, B.Sc., F.I.C. of the Public Health Laboratory. The material examined consisted in each case, at the time of deposit, of ashes, cinders, vegetable and animal matter, *i.e.*, the ordinary household refuse collected daily from houses by the scavengers of the Sanitary Authority. It contained no human excrement from privies or closets, and only a small proportion of manure from road scrapings.

The samples submitted to the Laboratory for examination were collected under my supervision, and at the same time I undertook to take thermometrical observations, with the object of ascertaining the temperature at certain depths of the various soils examined. The results of these observations compared with those relating to a comparatively pure soil are given in the report.

As the investigation is of a complicated and difficult character, and likely to be considerably prolonged, I have considered it advisable to submit the results of the preliminary examination which are in themselves of some interest, although from their incomplete nature they are not such as to justify definite conclusions. This plan was also rendered advisable as the examination so far as it has gone, has been carried out by Dr. Savage, who having resigned his appointment at the Laboratory, will be unable to complete the investigation. The further examinations will therefore be made by his successor, Dr. Schölberg, assisted as before by Mr. Sugden, and will comprise an extended examination of refuse deposited at varying depths and periods. So far the

results of the examinations made indicate that refuse taken from two to three feet below the surface does, in course of time become purified, and that this process takes place somewhat rapidly during the first two or three years after it has been deposited, and that the subsequent purification takes place at a very slow rate, so that the sample taken from refuse deposited about seventeen years still gave evidence of the presence of organic impurities.

The temperature observations are of interest as showing active chemical changes, with increase of temperatures in the more recent deposits, as compared with normal temperatures in the refuse deposited at a later date.

E. WALFORD,
Medical Officer of Health.

PRELIMINARY REPORT ON THE SELF PURIFICATION OF "MADE SOIL."

By W. G. SAVAGE, M.D., B.Sc. (LOND.), D.P.H., assisted by J. H. SUGDEN, B.Sc. F.I.C.

In accordance with the request of Dr. Walford, Medical Officer of Health, Cardiff, an investigation has been undertaken into the question of the self purification of refuse tipped upon soil within the Borough of Cardiff.

The subject is an extremely complex and difficult one and a full investigation must of necessity take many years before definite results can be arrived at.

The following therefore is a prelimary report dealing only with some of the points at issue and indicating the lines along which further investigations seem desirable.

The subject is one of very great practical importance. The tipped material deposited upon soil is obviously highly polluted. It is highly decomposible and its decomposition must cause the evolution of offensive gases. That such polluted soil will eventually become purified and rendered harmless may be accepted as probably true, but no known data are available for determining the rate of purification and when, if ever, such soil will be fit to build upon.

This primary consideration has been kept in view throughout the investigation. The following are the details :—

1.—*Composition and source of the material examined.*

All samples taken from mounds of made soil except those over seven years. When of later date they formed part of the surface of the ground. In every case the refuse was tipped upon stiff clay.

The tipped material mainly consists of ordinary dustbin refuse mixed with road scrapings and therefore contain cinders and ashes, vegetable and animal refuse.

2.—*Method of collection.*

After some preliminary work with samples taken in other ways, it was decided to collect the samples with Fränkel's Borer.

All the samples were collected by means of this borer from a depth of exactly two feet. Six or eight borings about a foot apart were made for each sample. The samples were transmitted to the Laboratory in sterile petri dishes.

3.—*Examination.*

Both chemical and bacteriological examinations were made.

The following were the different processes undertaken :—

A.—*Bacteriological Examination.*

Dilution 10 grms. added to 100 cc. sterile water — Dil. A.

Thoroughly well mixed and allowed to settle for exactly five minutes.

Then 1 cc. Dil. A added to 9·0 cc. sterile water — Dil. B.

Well mixed then 1 cc. Dil. B added to 9·0 cc. sterile water = Dil. C.

Well mixed then 0·1 cc. Dil. C added to 9·9 cc. sterile water = Dil. D.

The different amounts of Dilutions A. B. C. and D., were used for the examination. The following determinations were made :—

(1) Total number of organisms.
(2) Number of B. Coli.
(3) Number of B. Mycoides and Bismark Brown Cladothrix.
(4) The smallest quantity of soil producing indol.

B.—*Chemical Examination.*

The following determinations were made :—

(1) Percentage of moisture.
(2) Percentage of organic matter.
(3) Free Ammonia in parts per 1,000 of dry soil.
(4) Albuminoid Ammonia in parts per 1,000 of dry soil.
(5) Presence of Nitrates and Nitrites.
(6) The Oxygen absorbed in three minutes.
(7) The increase in readily putrescible organic matter.

Three minutes Oxygen absorbed after one weeks incubation. Incubator Test.

C.—*A few observations were made on the four feet temperature of these soils.*

In the series recorded 18 samples were obtained and examined.

Their ages etc., are as follows :—(All two feet samples).

No. 1.—1 month old. Collected February 2nd, 1903.
No. 2.—1 year old. ,, ,, ,, ,,
No. 3.—1 ,, ,, ,, March 3rd, ,,
No. 4.—2 ,, ,, ,, February 9th, ,,
No. 5.—3 ,, ,, ,, ,, 2nd, ,,
No. 6.—3 ,, ,, ,, March 9th, ,,
No. 7.—4 ,, ,, ,, February 9th, ,,
No. 8.—4 ,, ,, ,, March 3rd, ,,
No. 9.—5 ,, ,, ,, February 9th, ,,
No. 10.—6 ,, ,, ,, March 9th, ,,
No. 11.—7 ,, ,, ,, February 16th, ,,
No. 12.—7 ,, ,, ,, March 3rd, ,,
No. 13.—9-10, ,, ,, February 16th, ,,
No. 14.—11-12 years old ,, ,, ,, ,,
No. 15.—13-14 ,, ,, ,, March 6th ,,
No. 16.—17-18 ,, ,, ,, ,, 6th, ,,
No. 17.—Control Clay ,, ,, 9th, ,,
No. 18.—Control Peat soil from upland surface land. Collected March 16th, 1903.

A.—*Bacteriological Results.*

(1) Total number of organisms. See Table I. and Chart I.
(2) Number of B. Mycoides and Bismark Brown Cladothrix. See Table I.
(3) Number of B. Coli. See Table II.
(4) The indol producing capacity of the soil. See Chart II. and Table II.

B.—*Chemical Analyses Results.*

The result of these analyses are given in Table III. and Charts III., IV, and V.

C.—*Temperature Results.*

Only a few are recorded. They are given in Table IV.

Consideration of the Results obtained.

The total number of organisms present in 1 grm. of soil is very high in the quite recently deposited material. The number, however, rapidly diminishes. After 2—3 years there is apparently an increase in the total number per grm., only declining again in the very old soils.

In the explanation of these results the examination and numerical estimation of B. Coli in the soil is of value. From Table II. it will be seen that this organism was found in one month, and 1, 2, 3 and 4 year old soils, but could not be found in older soils even though a considerable quantity up to $\frac{1}{10}$ grm. of soil was examined.

The only exception was in No. 16, and here its presence may have been accidental.

As recorded in Table I., B. Mycoides and Bismark Brown Cladothrix are absent in the earliest samples; they are met with in 3 year old soil samples and from that date are regularly met with.

B. Coli is fairly abundant in refuse as tipped.

B. Mycoides and Bismark Brown Cladothrix are common soil organisms.

B. Mycoides is perhaps the commonest soil organism.

Considering the three sets of *data* together, viz.: Total number of organisms, number of B. Coli, number of B. Mycoides and Cladothrix, the following deduction seems not unfounded.

The refuse as deposited contains a very large number of organisms and which are in the main different from those met with in ordinary soil. These "made soil" organisms, as they may be called for convenience of reference, rapidly diminish in number, under the conditions under which they are placed. This diminution goes on for the first two to three years. After 2—3 years, however, the ordinary soil organisms begin to invade this material, and apparently thrive abundantly in the rich organic material available to them. This causes a marked increase in the total number of organisms present in the soil, and the total number remains large until in quite old soils a diminution is again met with. These soils begin to lose their special bacterial content after 2—3 years, and from that time begin to take on the bacteriological characters of ordinary soil.

The *indol* determinations were made as an index of the relative abundance of putrefactive bacteria.

The indol curve shows a progressive descent, and evidently putrefactive bacteria are present in made soil in considerable numbers even when 10 to 12 years old.

The amount of *organic matter* present shows, on the whole, a gradual decline. For the first two years it is over 20 per cent., subsequently declining. Even in quite old samples, i.e., 13—14 years, the percentage of organic matter remains high.

The total organic matter curve is a valuable index of the uniformity of the sampling and the composition of the made soil.

If the material deposited was of uniform composition, and the conditions which favour putrefaction were identical, it would be reasonable to expect that this curve would show a uniform decline.

That it does not do so, indicates, what must obviously be the case, that these uniform conditions do not prevail.

This curve also shows that, except for the last two years or so, the purification of the organic matter takes place very slowly.

The *Albuminoid Ammonia* figures give results which are very variable. The curve should give the relative proportions of nitrogenous organic matter present in the different samples. This shows scarcely any decline.

The *Free Ammonia* figures are more uniform. This determination may be taken as showing evidence of the actual presence of the products of nitrogenous decomposition.

The curve shows a rapid decline after the 2nd year, the 3rd and 4th and subsequent years' results showing comparatively low figures. In other words nitrogenous decomposition is rapid for the first 2—3 years, but subsequently it takes place very slowly.

Nitrates and Nitrites were generally absent. The amount of previous rainfall is probably one of the most important of the factors influencing the result, marked rainfall readily washing them out of the soil.

The *Incubator Test.* Here a determination was first made of the oxygen absorbed from potassium permanganate in 3 minutes. A 3 minutes' oxygen absorbed was subsequently determined on a fresh weighed quantity of soil incubated at 90 F. for 6 days.

If any putrefaction has taken place the oxygen absorbed in three minutes should exhibit a distinct increase in amount due ot course to the ready oxidisability of the products of putrefaction.

Chart V. shows that this increase is well marked in the one month and the two one-year samples, but that subsequently it is slight.

The curve of oxygen absorbed in three minutes before incubation shows only a gradua decline.

Conclusions.

It is obvious that a very much larger number of samples must be examined, that samples at different depths must be collected, and that all varying conditions must be recorded and investigated, before definite conclusions can be formulated.

With the present preliminary inquiry only deductions and suggestions for future work can be stated.

All the results seem to show that, at the depth of two feet, with these mounds of refuse deposited on damp impervious clay, putrefaction and concurrent purification takes place fairly rapidly for the first 2—3 years. The organisms present in the refuse as deposited rapidly decrease at the same time. After 2—3 years the number of organisms present increases, due apparently to the invasion of the material by the ordinary soil organisms.

After 2—3 years purification of this depth takes place extremely slowly, and samples 9—10 years old give results very little different from 4—5 years' samples.

It is probable that samples even as old as 17—18 years still contain organic matter which will slowly decompose and break up.

The gradual diminution and disappearance of B. Coli in this refuse is of interest from the point of view of specific contamination.

This organism apparently readily dies out in such material. It is a more resistant organism than B. Typhosus, while both thrive under very similar conditions. It is a fair assumption from this that the typhoid bacillus, if present in such soil, would also rapidly die out, and that the danger of *specific* contamination of such made soil can be neglected.

TABLE I.

TOTAL NUMBER OF ORGANISMS. NUMBER OF B. MYCOIDES AND CLADOTHRIX.

No.	Age of Soil.	Total No. of Organisms.	B. Mycoides.	Cladothrix.
1	1 month	44,000,000	Nil on any of the Plates	Nil on any of the Plates
2	1 year	4,600,000	,, ,, ,,	,, ,, ,,
3	1 ,,	2,600,000	,, ,, ,,	,, ,, ,,
4	2 years	2,450,000	,, ,, ,,	About 10,000
5	3 ,,	1,000,000	8,000 about	,, 15,000
6	3 ,,	7,300,000	10,000 ,,	,, 20,000
7	4* ,,	16,800,000	700,000 ,,	——
8	4 ,,	13,500,000	120,000 ,,	,, 2,000
9	5 ,,	6,000,000	57,000 ,,	,, 2,000
10	6 ,,	2,200,000	1,000 ,,	,, 5,000
11	7 ,,	4,800,000	167,000 ,,	,, 5,000
12	7 ,,	8,600,000	25,000 ,,	,, 15,000
13	9-10 ,,	7,800,000	100,000 ,,	,, 28,000
14	11-12 ,,	3,800,000	170,000 ,,	,, 20,000
15	13-14 ,,	450,000	10,000 ,,	——
16	17-18 ,,	2,200,200	20,000 ,,	,, 2,500
17	Control Clay	900,000	2,000 ,,	,, 35,000
18	,, Peat	50,000	Nil on any of the Plates	Nil on any of the Plates

*No. 7.—This Sample was collected as a 4 years' Sample, and was, in fact, deposited 4 years previously. It was subsequently ascertained, that though the part 2ft. down was 4 years old, yet a top dressing down to about 1½ feet had been applied subsequently, and this was only about 2 years old.

TABLE II.

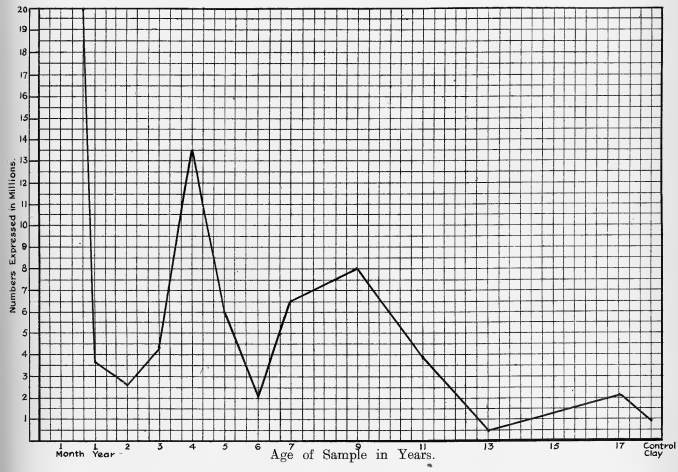
B. COLI IN SOILS AND INDOL RESULTS.

No.	Age of Soil.	Presence or absence of B. Coli.	Indol in Peptone Water, 1 week at 37° C.				
			0·01.	0·001	0·0001.	0·00001.	0·000001
1	1 month	Found in 0·00001 Grm. ...	+	+	+	+	+
2	1 year	,, 0·0001 ,, ...	+	+	+	+	+
3	1 ,,	,, 0·01 ,, ...				+	+
4	2 years	,, 0·001 ,, ...			+	+	—
5	3 ,,	,, 0·01 ,, ...	+	+	+	+	—
6	3 ,,	Not found in 0·01 Grm. or less ...			+	+	—
7	4 ,,	,, ,, 0.001 ,, ...			+	+	+
8	4 ,,	Found in 0·001 Grm. ...			+	+	—
9	5 ,,	Not found in 0·01 Grm. or less ...	+	+	+	—	—
10	6 ,,	,, ,, 0·1 ,, ,, ...		+	+	—	—
11	7 ,,	,, ,, 0·01 ,, ,, ...	+	+	+	—	—
12	7 ,,	,, ,, 0·01 ,, ,, ...		+	+	—	—
13	9-10 ,,	,, ,, 0·01 ,, ,, ...	+	+	+	—	
14	11-12 ,,	,, ,, 0·01 ,, ,, ...	+	+	+	—	
15	13-14 ,,	,, ,, 0·1 ,, ,, ...		+	—	—	—
16	17-18 ,,	Found in 0·1 Grm. not in smaller amts.		+	—	—	—
17	Control Clay	Not found in 0·1 Grm. or less ...	—	—	—	—	—
18	,, Peat	,, ,, 0·1 ,, ,, ...	—	+	—	—	—

TABLE III. CHEMICAL ANALYSES.

No.	Age.	Moisture. (per cent.)	RESULTS STATED IN PARTS PER 1,000 ON DRY SOIL.								
			Organic Matter.	Free Ammonia.	Albuminoid Ammonia.	Nitrates in 2½ grms.	Nitrites in 2½ grms.	Incubator Test.			Increase.
								6 days.	Oxygen absorbed before Incubation.	In 3 minutes after Incubation.	
No. 1	1 month.	25·02	236·5	0·656	1·026	Nil.	Nil.	Distinctly putrescible.	0·163	0·418	0·255
,, 2	1 year	27·16	214·7	0·915	1·181	,,	,,	Faintly putrescible.	0·188	0·247	0·059
,, 3	1 ,,	30·41	266·9	1·293	1·876	,,	,,	Putrefactive.	0·151	0·296	0·145
,, 4	2 ,,	34·53	227·9	0·813	1·024	,,	,,	Faintly putrescible.	0·137	0·107	0·03
,, 5	3 ,,	32·74	158·5	0·045	0·731	0·048	Distinct traces.	,,	0·021	0·025	0·004
,, 6	3 ,,	26·25	168·8	0·108	1·134	Nil.	Nil.	,,	0·057	0·061	0·004
,, 7	4 ,,	46·44	254·8	0·112	2·782	,,	,,	Putrescible.	0·224	0·491	0·267
,, 8	4 ,,	32·57	100·4	0·065	1·161	Traces.	,,	Non-putrescible	0·126	0·155	0·029
,, 9	5 ,,	28·55	106·4	0·224	1·278	Nil.	,,	Putrescible.	0·092	0·098	0·006
,, 10	6 ,,	36·92	180·0	0·074	1·078	Traces.	,,	Non-putrescible	0·024	0·024	Nil.
,, 11	7 ,,	27·22	97·9	0·064	1·497	Nil.	,,	,,	0·088	0·143	0·055
,, 12	7 ,,	32·25	197·8	0·040	1·185	Appreciable amount.	,,	,,	0·084	0·096	0·012
,, 13	9-10 ,,	41·06	147·6	0·181	1·585	Nil.	,,	,,	0·085	0·088	Nil.
,, 14	11-12 ,,	27·39	113·5	0·037	1·166	,,	,,	,,	0·083	0·093	0·01
,, 15	13-14 ,,	28·78	145·1	0·327	0·991	Traces.	,,	,,	0·082	0·134	0·052
,, 16	17-18 ,,	33·86	165·1	0·05	1·078	Appreciable.	,,	,,	0·038	0·032	Nil.
,, 17	Cortrol Clay.	22·35	41·2	0·015	0·324	Traces.	,,	—	—	—	—
,, 18	Control Peat.	79·0	—	0·333	10·85	Nil.	,,	Non-putrescible	16·66	26·81	10·15

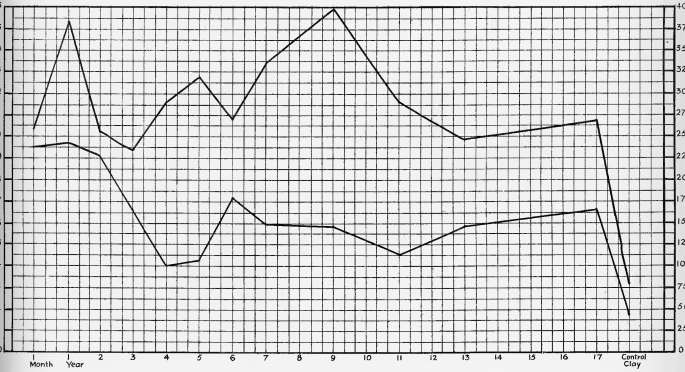
Chart I.—Total Number of Organisms per Gram. of Soil.



With two soils of the same age the average is taken as the number of organisms for that age of soil.

CHART III.—ALBUMINOID AMMONIA AND ORGANIC MATTER.

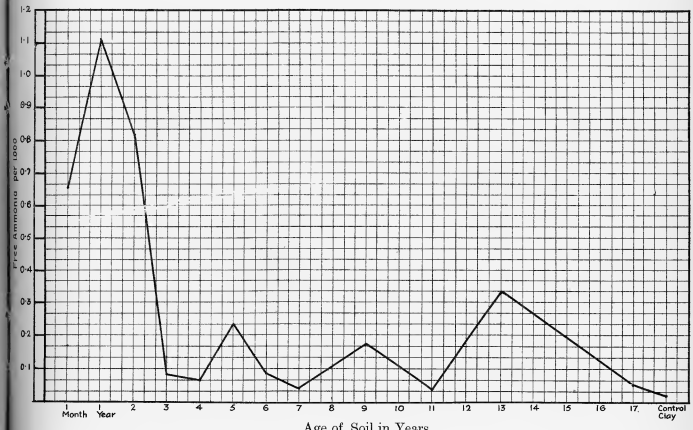
Upper Curve = Albuminoid Ammonia.
Lower Curve = Organic Matter.



Age of Soil in Years.

	Albuminoid Ammonia.		Organic Matter.	
1 year	1·181 and 1·876.	Average = 1·53.	214·7 and 266·9.	Average = 240·8.
3 years	0·731 ,, 1·134.	,, = 0·993.	158·5 ,, 168·8.	,, = 163·6.
7 ,,	1·497 ,, 1·185.	,, = 1·34.	97·9 ,, 197·8.	,, = 148·0.

CHART IV.—FREE AMMONIA.

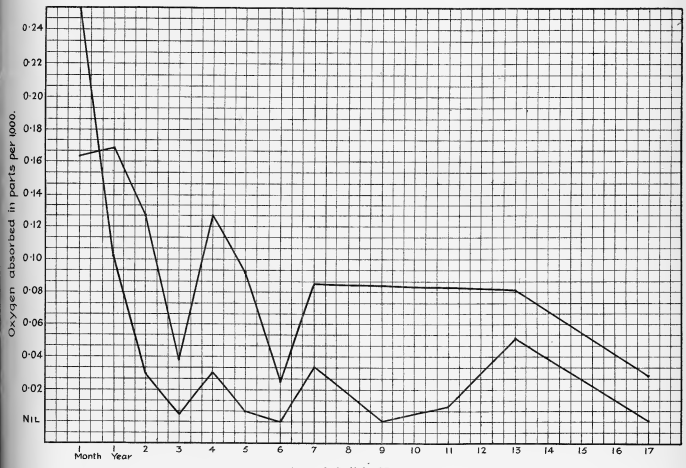


Age of Soil in Years.

1 year 0·915 and 1·293. Average = 1·104.
3 years 0·045 ,, 0·108. ,, = 0·077.
7 ,, 0·064 ,, 0·040. ,, = 0·052.

CHART V.—INCUBATOR TESTS.

Upper Curve = Oxygen absorbed in 3 minutes before Incubation.
Lower Curve = Increase after 6 days' Incubation.



Age of Soil in Years.

	Before Incubation.		Increase.	
1 year	0·188 and 0·151.	Average = 0·169.	0·059 and 0·145.	Average = 0·102.
3 years	0·021 ,, 0·057.	,, = 0·039.	0·004 ,, 0·004.	,, = 0·004.
7 ,,	0·088 ,, 0·084.	,, = 0·086.	0·055 ,, 0·012.	,, = 0·034.

TABLE IV.

EARTH TEMPERATURE RECORDS.—FOUR FEET DEEP.

Date.	MADE SOIL.	NORMAL SOIL.
1903.		
Feb. 9th	3 years ... 60·5°F.	48·0°F.
,, 10th	,, ... 60·5 ,,	48·0 ,,
,, 11th	,, ... 60·5 ,,	48·0 ,,
,, 12th	,, ... 60·5 ,,	48·0 ,,
,, 13th	,, ... 60·5 ,,	48·0 ,,
,, 14th	,, ... 60·5 ,,	48·0 ,,
,, 16th	,, ... 60·5 ,,	48·0 ,,
,, 17th	,, ... 60·75 ,,	48·0 ,,
,, 18th	,, ... 60·75 ,,	48·0 ,,
,, 19th	,, ... 60·75 ,,	48·0 ,,
,, 20th	,, ... 60·75 ,,	48·0 ,,
,, 21st	,, ... 60·75 ,,	48·0 ,,
Mar. 4th	14 years ... 48·5 ,,	48·0 ,,
,, 5th	,, ... 48·0 ,,	48·0 ,,
,, 6th	,, ... 48·0 ,,	48·0 ,,
,, 7th	,, ... 48·0 ,,	48·0 ,,
,, 8th	,, ... 48·0 ,,	48·0 ,,
,, 9th	,, ... 48·0 ,,	48·0 ,,
,, 10th	,, ... 48·0 ,,	48·0 ,,
,, 11th	,, ... 48·0 ,,	48·0 ,,
,, 12th	,, ... 48·0 ,,	48·0 ,,
,, 13th	,, ... 48·0 ,,	48·0 ,,
,, 14th	,, ... 48·0 ,,	48·0 ,,

WILLIAM G. SAVAGE.

March 16th, 1903.

INSANITARY DWELLINGS.—Since the passing of the Housing of the Working Classes Act, 1890, a considerable amount of insanitary property has been dealt with under Part II. of the Act. The provisions of this part of the Act give power to the Sanitary Authority to apply to the Magistrates for a closing order against any house on the representation of the Medical Officer of Health that it is unfit for habitation.

If after closure the premises are not put into a good sanitary condition, the Authority may pass a resolution that it is expedient to order the demolition of the dwelling.

This order must be complied with within three months from the service of notice, in default of which the Authority must demolish the building, selling all material and paying the balance, after deducting expenses to the owner.

Amongst the dwellings which have been permanently closed, either by a closing order or by the voluntary action of the owner, since the Act came into operation, the following may be mentioned :—

Mill Lane Court, 34 houses in Stanley Street, 12 houses in Leckwith Road, Kettle Court, Evans' Court, Union Buildings, Sandon Court, Dalton Court, Gainors' Court, Rising Sun Court, Jones' Court (Womanby Street), The Tunnel (Queen Street), Temperance Terrace (Working Street), Queen's Place and Masons' Arms Court. In the latter part of the year 1900, a Report was submitted to your Health Committee upon the sanitary condition of a number of small courts and insanitary dwellings, and in the following year the Report was adopted and acted upon. It dealt with 134 houses, containing an aggregate of 331 rooms, and a total population at the time of inspection amounting to 395 persons, and related to the following Courts and collections of houses :—

Name of Court.	No. of Houses.	No. of Rooms.	No. of Inhabitants.
Carpenters' Arms' Court	7	20	24
Davies' Court	3	7	5
Williams' Court	2	4	5
Robert's Court	7	21	34
Jenkins' Court	5	10	17
Giles' Court	4	12	16
Love Lane Court	5	10	20
Castle Court	5	10	15
Moulders' Arms Court	2	4	4
Trice's Court	3	7	7
Mack's Court	2	5	3
Rowland's Buildings	4	10	16
Evans' Court	2	8	8
Gulliver's Court	2	6	5
Bryant's Court	2	4	4
Matthew's Court	6	13	13
Jonathan's Court	2	4	—
Dew's Court	4	12	14
Spring Garden Court	5	12	14
Crown Court	4	10	9
Harris' Court	6	15	20
Womanby Street Cottages	5	8	14
Green Garden Court	6	23	21
Kingston Court	10	22	15
Stacey Court	4	12	19
Picton Cottages	3	6	10
Old Sea Lock	6	17	20
Stagg Terrace	13	29	40

The Report shows that the largest of these Courts contained 13 houses, the majority of them not more than five, and that the other premises were simply collections of two or three small cottages built in the yard of some larger houses in the main street, and through which access to the Court was obtained. Insufficient ventilation and lighting and inadequate air space were the conditions common to them all. Many of the houses were without back yards or through ventilation, and many depended for their water supply upon one common tap in the Court.

Water Closet accommodation was found to be generally insufficient and defective, and without water for flushing. The recommendations contained in the Report were that in the first place application should be made to the Magistrates for closing orders with respect to some of the worst and most insanitary of these premises, and that the others should be dealt with subsequently, either in the same way or under the Nuisance Removal clauses of the Public Health Act. In this way no extensive displacement of people from their houses would take place. Application was accordingly made and closing orders were obtained with respect to the following premises:—Love Lane Court, Castle Court, Moulders' Arms Court, Bryant's Court, Matthew's Court, Harris Court, Stacey Court, and Picton Cottages. During the year 1902, closing orders, under the Housing of the Working Classes Act, have been obtained in respect of five houses in Jenkins' Court on account of the following defects:—(1) Insufficient air space in front of houses; absence of air space at the back. (2) Excessive dampness of internal walls. (3) Insufficient and defective Water Closet accommodation and Drainage. (4) Insufficient Water Supply and the general bad state of repair of dwellings.

With the view of ascertaining to what extent overcrowding of dwellings existed in the Borough, I commenced in the year 1900 a special inspection in order to discover the average number of inmates per room in each house visited. The results of this inspection, which was made by the District Inspectors, is given in the Report for that year. During the years 1901 and 1902 this inspection has been continued, and the following Table gives the information obtained in the latter year. The standard of overcrowding taken is that laid down in the Census Report of 1891, *i.e.*, an average exceeding two persons per room.

The Report for the year 1900 showed that out of 1,790 houses examined, 24 or 1.3 per cent. exceeded this limit.

In the Report for the year 1901 3,757 houses were examined. Of these 30 or 0·78 per cent. contained more than an average of two occupants per room.

In the year under consideration 3,150 houses were examined, and of these 45 or 1·3 per cent. contained more than an average of two occupants per room.

TABLE XXII.

HOUSE INSPECTION.

CENTRAL WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two Occupants per Room.	Number of Houses with more than average of one Occupant per Room.
Love Lane	1	6	1	...	1
,, ,, ...	3	4	2	...	1
,, ,, ...	25	4	1	1	12
,, ,, ...	1	3	2	...	1
,, ,, ...	1	3	1	1	...
,, ,, ...	2	2	1	...	1
Stanley Street	1	3	1	...	...
,, ,, ...	2	2	1	...	1
Peter's Court	1	2	2	1	...
,, ,, ...	1	2	1	1	...
French Cottages ...	4	4	1	1	...
Love Lane Court ...	3	2	1	1	1
Rodney Street	1	7	3	...	...
,, ,, ...	1	7	2	...	1
,, ,, ...	8	6	2	...	5
,, ,, ...	2	6	1	...	2
,, ,, ...	1	5	1	...	1
,, ,, ...	2	4	2	...	...
Tredegar Street... ...	1	7	3	...	...
,, ,, ...	2	7	2	...	1
,, ,, ...	2	7	1	...	...
,, ,, ...	1	6	3	...	1
,, ,, ...	3	6	2	..	2
,, ,, ...	17	6	1	...	4
,, ,, ...	1	5	2	...	1
,, ,, ...	7	5	1	...	5
,, ,, ...	3	4	2	1	2
,, ,, ...	5	4	1	1	1
Charlotte Street ...	1	7	1	1	...
,, ,, ...	1	6	1	1	...
Bute Terrace	1	11	1	...	...
,, ,, ...	1	10	1	...	...
,, ,, ...	2	9	1	...	1
,, ,, ...	2	8	1	...	1
,, ,, ...	1	7	2	...	1
,, ,, ...	14	7	1	...	1
,, ,, ...	6	6	1	...	2
,, ,, ...	1	4	1	...	...
,, ,, ...	1	3	1	...	...
Ruperra Street	1	6	3	...	1
,, ,, ...	4	6	2	...	3
,, ,, ...	8	6	1	...	3
,, ,, ...	1	4	1	...	...
,, ,, ...	1	3	1	...	...
Homfray Street... ...	1	10	1	1	...
,, ,, ...	1	7	1	1	...
,, ,, ...	2	6	1	...	2
,, ,, ...	3	5	1	1	1
,, ,, ...	4	4	2	...	2
,, ,, ...	13	4	1	2	5
,, ,, ...	1	2	1	...	...
Little Frederick Street ...	1	8	1	...	...
,, ,, ,, ...	1	7	1	...	...
,, ,, ,, ...	1	6	3	...	...
,, ,, ,, ...	1	6	1	...	...
,, ,, ,, ...	1	5	3	1	...
,, ,, ,, ...	1	5	1	...	1

CENTRAL WARD—Continued.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two Occupants per House.	Number of Houses with more than average of one Occupant per House.
Little Frederick Street ...	2	4	2	...	1
,, ,, ,, ...	16	4	1	...	6
,, ,, ,, ...	1	3	1	1	...
,, ,, ,, ...	1	2	2	...	1
,, ,, ,, ...	5	2	1	1	1
Gough Street	1	8	2	...	...
,, ,, ...	9	6	2	1	3
,, ,, ...	10	6	1	...	5
,, ,, ...	3	5	2	...	2
,, ,, ...	2	5	1	...	2
,, ,, ...	1	4	2	1	...
,, ,, ...	1	4	1	...	...
David Street	1	12	1	...	...
,, ,, ...	4	7	1	...	1
,, ,, ...	3	6	2	...	2
,, ,, ...	1	5	3	...	...
,, ,, ...	2	5	2	...	2
,, ,, ...	10	5	1	...	6
,, ,, ...	1	4	2	...	...
,, ,, ...	5	4	1	...	3
Millicent Street... ...	2	11	1	...	...
,, ,, ...	1	10	1	...	...
,, ,, ...	1	9	1	...	...
,, ,, ...	3	8	1	...	...
,, ,, ...	1	7	4	...	...
,, ,, ...	1	7	1	...	...
,, ,, ...	1	6	2	...	1
,, ,, ...	7	6	1	...	1
,, ,, ...	1	5	2	...	...
,, ,, ...	4	5	1	...	1
,, ,, ...	3	4	2	...	2
,, ,, ...	18	4	1	1	10
,, ,, ...	1	3	2	...	...
,, ,, ...	10	3	1	...	4
,, ,, ...	5	2	1	1	3
Mary Ann Street ...	1	8	1	...	...
,, ,, ,, ...	1	7	1	...	...
,, ,, ,, ...	6	6	1	1	1
,, ,, ,, ...	2	5	1	...	1
,, ,, ,, ...	5	4	2	..	5
,, ,, ,, ...	30	4	1	2	7
,, ,, ,, ...	1	2	1	...	...
East Terrace	1	12	1	...	...
,, ,, ...	1	10	1	...	...
,, ,, ...	1	9	1	...	...
,, ,, ...	2	8	1	...	1
,, ,, ...	1	7	3	...	1
,, ,, ...	2	7	2	...	2
,, ,, ...	4	7	1	...	2
,, ,, ...	4	6	2	...	...
,, ,, ...	2	6	1	...	1
,, ,, ...	1	5	1	...	...
,, ,, ...	1	4	1	...	...
Union Street	1	8	1	..	...
,, ,, ...	2	7	1	...	...
,, ,, ...	2	6	2	...	1
,, ,, ...	12	6	1	...	6
,, ,, ...	2	5	2	1	...
,, ,, ...	6	5	1	...	1
,, ,, ...	6	4	2	...	3
,, ,, ...	43	4	1	1	7
,, ,, ...	1	3	1	...	...
,, ,, ...	1	2	1	...	...
TOTAL ...	459	665	171	28	164

SOUTH WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Margaret Street	1	8	1	...	...
,, ,, ...	7	7	2	...	3
,, ,, ...	3	7	1	...	1
,, ,, ...	13	6	2	...	10
,, ,, ...	8	6	1	...	4
,, ,, ...	1	5	1	...	1
Harrowby Street... ...	36	4	1	3	16
Dudley Street	1	8	1	...	...
,, ,, ...	5	7	2	...	2
,, ,, ...	4	7	1	...	1
,, ,, ...	2	6	2	...	1
,, ,, ...	3	6	1	...	..
,, ,, ...	1	4	2	...	1
,, ,, ...	1	4	1	...	1
Old Sea Lock Court ...	1	9	2	...	...
,, ,, ...	1	9	1	...	...
,, ,, ...	2	4	1	...	1
,, ,, ...	7	3	1	...	1
Total	97	110	24	3	43

CATHAYS WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Minister Street	1	7	1	...	1
,, ,, ...	1	6	2	...	...
,, ,, ...	1	6	1	..	3
,, ,, ...	4	5	1	...	...
Treherbert Street ...	2	7	1	...	...
,, ,, ...	1	6	3	...	1
,, ,, ...	2	6	2	...	2
,, ,, ...	25	6	1	...	4
,, ,, ...	6	5	1	...	3
,, ,, ...	7	4	1	1	4
Treorky Street	1	7	2	...	...
,, ,, ...	5	6	2	...	2
,, ,, ...	16	6	1	...	3
,, ,, ...	3	5	1	...	...
,, ,, ...	1	4	1	...	1
Hirwain Street	1	7	2	...	...
,, ,, ...	3	6	2	...	...
,, ,, ...	47	6	1	...	8
Darran Street	4	7	1	...	2
,, ,, ...	18	6	1	...	4
,, ,, ...	1	5	2	...	...
Norman Street	4	6	2	...	1
,, ,, ...	9	6	1	...	1
,, ,, ...	10	7	2	...	4
,, ,, ...	39	7	1	...	5
,, ,, ...	4	4	1	...	4
Total	216	153	37	1	53

PARK WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Vere Street	1	8	2	...	1
,, ,, ...	2	8	1	...	...
,, ,, ...	15	6	1	...	5
Crwys Road	2	9	2	...	1
,, ,, ...	1	9	1	...	...
,, ,, ...	2	8	2	...	...
,, ,, ...	11	8	1	...	...
,, ,, ...	1	6	1	...	1
Crwys Place	1	7	1	...	...
,, ,, ...	22	6	1	...	7
Donald Street	8	6	2	...	2
,, ,, ...	31	6	1	...	4
,, ,, ...	12	4	1	...	3
Arabella Street	17	6	1	...	4
,, ,, ...	38	4	1	1	13
Violet Row	2	6	2	...	2
,, ,, ...	10	6	1	...	4
Inverness Place	20	6	1	...	2
,, ,, ...	38	4	1	..	13
Mackintosh Place ...	1	10	1	...	1
,, ,, ...	9	6	2	...	5
,, ,, ...	47	6	1	...	8
,, ,, ...	1	4	1	..	...
Total	292	149	29	1	76

ADAMSDOWN WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Adam Street	1	10	1	...	...
,, ,, ...	2	9	3	...	1
,, ,, ...	1	9	1	...	...
,, ,, ...	1	8	4	...	...
,, ,, ...	2	8	3	...	1
,, ,, ...	11	8	2	...	4
,, ,, ...	9	8	1	...	2
,, ,, ...	2	7	3	...	2
,, ,, ...	6	7	2	...	2
,, ,, ...	10	7	1	1	2
,, ,, ...	1	6	4	1	...
,, ,, ...	4	6	2	1	3
,, ,, ...	8	6	1	...	1
,, ,, ...	1	5	2	...	1
,, ,, ...	8	5	1	...	2
,, ,, ...	1	4	2	...	1
,, ,, ...	7	4	1	...	3
,, ,, ...	1	3	2	...	1
,, ,, ...	4	3	1	...	1
,, ,, ...	2	2	1	...	1
Kyte Street	1	8	2	...	1
,, ,, ...	2	5	2	...	2
,, ,, ...	1	5	1	...	...
Cycle Street	1	7	1	...	...
,, ,, ...	28	4	1	...	9
Platinum Street ...	18	4	1	...	2
Galston Street	2	6	1	...	...
,, ,, ...	30	4	1	...	9
Galston Place	11	5	1	...	1
Copper Street	1	10	4	...	...
,, ,, ...	1	6	3	...	...
,, ,, ...	5	6	2	...	5
,, ,, ...	10	6	1	...	2
Davis Street	1	8	3	...	1
,, ,, ...	2	8	2	...	...
,, ,, ...	3	8	1	...	...
,, ,, ...	2	7	3	...	2
,, ,, ...	8	7	2	...	3
,, ,, ...	16	7	1	...	1
Meteor Street	2	8	1	..	...
,, ,, ...	3	7	1	...	...
,, ,, ...	4	6	2	...	3
,, ,, ...	27	6	1	...	7
Zinc Street	5	6	1	...	...
,, ,, ...	2	5	1	...	...
,, ,, ...	28	4	1	...	9
Sandon Place	1	8	3	...	1
,, ,, ...	1	7	4	...	1
,, ,, ...	8	7	3	...	6
,, ,, ...	9	7	2	...	6
,, ,, ...	9	7	1	...	2
,, ,, ...	1	6	3	...	1
,, ,, ...	1	6	1	...	...
,, ,, ...	1	5	1	...	1
,, ,, ...	1	4	1	...	...
Adamsdown Square ...	2	9	2	...	...
,, ,, ...	1	9	1	...	...
,, ,, ...	3	8	1	...	...
,, ,, ...	6	7	2	...	2
,, ,, ...	12	7	1	...	2
,, ,, ...	1	6	2	...	1
Buzzard Street	3	7	3	...	2
,, ,, ...	10	7	2	...	6
,, ,, ...	9	7	1	...	1
,, ,, ...	1	6	3	1	...
,, ,, ...	2	6	2	1	...
,, ,, ...	2	6	1	...	...
,, ,, ...	1	5	2	...	1
,, ,, ...	3	5	1	...	...
,, ,, ...	3	4	1	...	...
Total ...	387	444	123	5	118

RIVERSIDE WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per Room.	Number of Houses with more than average of one occupant per Room.
Halket Street	1	6	2	...	...
,, ,, ...	4	6	1	...	1
,, ,, ...	1	5	3	...	1
,, ,, ...	12	5	2	...	2
,, ,, ...	13	5	1	...	4
,, ,, ...	2	4	1	...	...
Wyndham Crescent ...	4	9	1	...	...
,, ,, ...	1	8	1	...	1
,, ,, ...	1	7	3	...	...
,, ,, ...	1	7	2	...	...
,, ,, ...	45	7	1	...	3
,, ,, ...	6	6	2	...	4
,, ,, ...	38	6	1	...	2
,, ,, ...	1	5	2	...	...
,, ,, ...	2	5	1	...	...
,, ,, ...	2	4	1	...	...
Wyndham Road	8	6	2	...	2
,, ,, ...	73	6	1	...	6
,, ,, ...	1	4	1	...	...
Total	216	111	29	...	26

CANTON WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per Room.	Number of Houses with more than average of one occupant per Room.
Ethel Street	21	6	2	...	11
,, ,, ...	33	6	1	...	19
Daisy Street	5	6	2	...	3
,, ,, ...	51	6	1	...	11
Romilly Road, West ...	2	10	1	...	...
,, ,, ,, ...	4	7	1	...	1
,, ,, ,, ...	9	6	2	...	6
,, ,, ,, ...	11	6	1	...	1
,, ,, ,, ...	1	5	2	...	...
,, ,, ,, ...	7	5	1	...	2
Ivy Street	3	6	1	...	1
,, ,, ...	2	5	2	...	...
,, ,, ...	16	5	1	...	8
Gray Street	1	7	1	...	...
,, ,, ...	39	6	1	...	6
,, ,, ...	7	5	1	...	1
Total	212	97	21	...	70

ROATH WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Helen Street	17	6	2	...	11
,, ,, ...	30	6	1	...	9
,, ,, ...	2	4	2	...	2
,, ,, ...	13	4	1	...	8
Nora Street	5	6	2	...	4
,, ,, ...	27	6	1	...	7
,, ,, ...	1	5	1	...	1
,, ,, ...	7	4	2	1	6
,, ,, ...	23	4	1	2	14
Fort Street	13	4	1	...	3
Tyler Street	8	6	1	...	1
,, ,, ...	1	4	2	..	...
,, ,, ...	7	4	1	...	...
Fox Street	1	6	2	...	...
,, ,, ...	11	6	1	...	1
Booker Street	1	6	2	...	1
,, ,, ...	13	6	1	...	1
Richards Terrace ...	7	8	1	...	...
,, ,, ...	3	7	2	...	...
,, ,, ...	27	7	1	...	3
,, ,, ...	7	6	2	...	...
,, ,, ...	34	6	1	...	7
Broadway	1	14	1	...	...
,, ...	1	12	1	...	..
,, ...	1	9	1	...	...
,, ...	14	8	1	...	3
,, ...	6	7	2	...	3
,, ...	77	7	1	...	6
,, ...	6	6	2	...	4
,, ...	66	6	1	...	17
,, ...	3	5	1	...	1
,, ...	1	3	1	...	...
Total	434	198	43	3	113

GRANGETOWN WARD.

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Oakley Street	1	9	1	...	...
,, ,, ...	9	6	2	...	8
,, ,, ...	25	6	1	...	6
,, ,, ...	32	4	1	...	13
Knole Street	6	6	2	...	2
,, ,, ...	25	6	1	...	7
,, ,, ...	19	4	1	...	9
Hewell Street	1	9	1	...	...
,, ,, ...	14	6	2	...	11
,, ,, ...	49	6	1	...	11
Forrest Street	3	7	1	...	..
,, ,, ...	6	6	1	...	2
Virgil Street	11	5	1	...	4
Chester Place	3	6	2	...	3
,, ,, ...	9	6	1	...	1
Chester Street	1	7	1	...	1
,, ,, ...	2	6	2	...	2
,, ,, ...	22	6	1	...	4
,, ,, ...	8	5	1	...	3
Total	246	116	24		87

SPLOTT WARD

NAME OF STREET.	Number of Houses.	Number of Rooms per House.	Number of Tenements per House.	Number of Houses with more than average of two occupants per room.	Number of Houses with more than average of one occupant per room.
Habershon Street ...	7	7	2	...	3
,, ,, ...	38	7	1	..	6
,, ,, ...	3	6	3	...	3
,, ,, ...	53	6	2	...	26
,, ,, ...	72	6	1	...	19
,, ,, ...	1	5	2	...	...
,, ,, ...	9	5	1	...	4
,, ,, ...	1	1	1	...	...
Florence Street	8	6	1	...	...
,, ,, ...	9	5	1	...	...
Bridgend Street	1	6	3	1	...
,, ,, ...	22	6	2	1	18
,, ,, ...	25	6	1	...	14
Burnaby Street	16	6	2	..	7
,, ,, ...	37	6	1	...	6
Eyre Street	3	7	2	...	1
,, ,, ...	6	7	1	...	3
,, ,, ...	13	6	2	...	9
,, ,, ...	29	6	1	...	12
Coveny Street	1	6	3	...	1
,, ,, ...	19	6	2	...	11
,, ,, ...	29	6	1	...	14
Swinton Street	1	6	2	...	...
,, ,, ...	4	6	1	...	1
,, ,, ...	36	5	1	1	10
Seymour Street	3	7	2	...	...
,, ,, ...	7	7	1	...	2
,, ,, ...	10	6	2	1	5
,, ,, ...	47	6	1	...	11
Cameron Street	8	6	1	...	1
,, ,, ...	34	5	1	...	10
Wilson Street	22	6	1	...	3
,, ,, ...	17	5	1	...	3
Total	591	193	50	4	203

SUMMARY OF FOREGOING TABLES.

WARDS.	Number of Houses.	Number of houses with more than average of two occupants per room.	Number of houses with more than average of one occupant per room.
Central Ward	459	28	164
Park Ward	292	1	76
Riverside Ward	216	0	26
Roath Ward	434	3	113
Splott Ward	591	4	203
Cathays Ward	216	1	53
Grangetown Ward	246	0	87
South Ward	97	3	43
Adamsdown Ward	387	5	118
Canton Ward	212	0	70
Total	3,150	45	953

INSPECTION OF FACTORIES AND WORKSHOPS.—The Factory and Workshop Act of 1901 makes considerable alterations in and additions to the duties hitherto falling upon Medical Officers of Health. Under Section 132 the Medical Officer of Health is required, in his Annual Report, to deal specifically with the administration of the Act (so far as the matters under the charge of the Sanitary Authority are concerned), and to send a copy of this Report to the Secretary of State.

The work carried out during the year 1902 is shewn in the subjoined tables:

Sec. 101 of the Act imposes important duties on Sanitary Authorities in regard to underground bakehouses. The Section provides that no underground bakehouse shall be used as such unless it was so used at the time of the passing of the Act, *i.e.*, August 17th, 1901, and further, that after the 1st January, 1904, no underground bakehouse (whenever established), may be used unless the Sanitary Authority is satisfied that it is suitable for the purpose in regard to construction, light, ventilation, and in all other respects, and have given it a certificate of suitability. A definition of the term "underground bakehouse" is given for the first time in this Act:— "A bakehouse is to be deemed an underground bakehouse if any room used for baking or for any process incidental thereto, is so situate that the surface of the floor is more than three feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room." The question of the conditions under which these certificates should be granted is one of some difficulty, as no detailed instructions are given in the Act.

The matter is left entirely to the discretion of the Sanitary Authority, subject to the general principle that all underground bakehouses must be suitable as regards construction, ventilation, light, and in all other respects.

This section of the Act was apparently framed with the intention of encouraging the total abolition of underground bakehouses, and there can be no doubt that it would have this effect if Sanitary Authorities throughout the country were to adopt a high standard of suitability. On the other hand as these certificates are not subject to periodical renewals the practical working of this part of the Act may, unless extreme care is taken, result in the prolonged use of unsuitable premises.

In some large towns containing a large number of underground bakehouses a standard of suitability has been laid down, and quite recently the Incorporated Society of Medical Officers of Health formulated a set of regulations containing the conditions under which such certificates might, in their opinion, be granted. These will prove a valuable guide to Medical Officers of Health when called upon to advise in this matter, and will tend to secure a uniformity of action.

There can be no doubt that persons working under the conditions at present existing in some underground bakehouses cannot be otherwise than unhealthy, and of this there is distinct statistical evidence.

The palor and anæmic appearance of such persons is obvious to the most casual observer, and it is known that they are particularly subject to phthisis and diseases of the lungs. An examination of the air of underground bakehouses made by the Public Analyst of Finsbury showed (as a mean of eight analyses), a high degree of impurity, the volume of carbonic acid gas being equal to 14·8 per 10,000 volumes of air as compared with 4·3 the amount in the open air of the streets of Finsbury.

In Cardiff there are only 6 underground bakehouses, and up to the present only one certificate has been applied for.

Extensive structural alterations will have to be made in each case, in order to comply with the terms of the Act with respect to certificates.

FACTORY AND WORKSHOP ACT, 1901.

Report of the Medical Officer of Health on the Administration of the Act in the Urban Sanitary District of Cardiff during the year 1902.

Classification and Inspection.—Total No. of Workshops in the District, as per Register, 1,233, including — 160 Domestic Workshops, 196 Retail Bakehouses, 21 Laundries, and 856 Other Workshops.

Total No. of visits of inspection made during 1902, ... 2,138.

SANITATION.

	Workshops.	Domestic Factories and Domestic Workshops.
Cleanliness—		
No. of Notices served under P.H. Acts ..	175	26
No. of Notices to Cleanse, under Sec. 2 ...	116	1
Legal Proceedings	...	...
Air Space—		
No. of Notices to abate over-crowding ...	6	...
No. of Notices to affix card, Sec. 3 (4) ...	6	...
Legal Proceedings	...	...
Ventilation—		
No. of Notices under P.H. Act	21	...
Legal Proceedings	...	...
Means of Ventilation—		
Any action under the new powers of Sec. 7 ...	...	...
Drainage of Wet Floors—		
Action under Sec. 8	...	...

Additional Sanitation for "Retail Bakehouses":—No. of such premises in the District, 196.

ACTION TAKEN AS TO RETAIL BAKEHOUSES DURING 1902:—

	No. of defects found.	Notices served.	Legal Proceedings.	Defects remedied.
As to Closets, etc., s. 97 ...	...	...	...	...
As to Water Cisterns, s. 97 ...	...	...	...	...
As to Drain Openings, s. 97 ...	...	...	...	...
As to Limewashing, etc s. 99 ...	85	85	...	85
As to Sleeping Places, s. 100 ...	...	...	...	...

Underground Bakehouses.—No. of such premises in District, 6.

Sanitary Conveniences.—Date of adoption of Sec. 22 of the Public Health Acts Amendment Act, 1890, May 1st, 1891.

No. of defects discovered thereunder in factories or workshops during 1902 — 15
(*a*) Closets insufficient or unsuitable, 8 (*b*) Closets not separate for sexes, 7.

No. of Notices issued under the Section during 1902 ... ... 15.

Home Work. Sections 107 to 115.—Total No. of Lists of Outworkers received during 1902, 70, representing 35 Employers, 88 Contractors, and 160 Outworkers.

CLASSIFICATION OF LISTS RECEIVED:—

Outwork in connection with	No. of Lists Received.			Total No. of such Employers or Contractors.	Total No. of such Outworkers in the District.
	Up to Feb. 1st, 1902.	To Aug. 1st, 1902.	Total to Dec. 31st, 1902.		
Wearing Apparel	35	35	70	70	248

Outworkers' premises—No. inspected—160. Any prohibition as to infected houses (s. 110)—22.

General.—No. and nature of sanitary defects, reported to the Authority by H.M. Inspectors, during 1902 ... ... 4.

Action taken in consequence.—Notices served and defects remedied.

No. of infringements reported by Sanitary Authority to H.M. Inspector (*e.g.*, s. 133), 56.

INSPECTION OF FACTORIES AND WORKSHOPS.

UNDER THE FACTORY AND WORKSHOP ACT, 1901, AND THE SHOP HOURS ACTS, 1892-95, AND THE SEATS FOR SHOP ASSISTANTS ACT, 1899.

During the year a large number of workshops have been inspected. The results of these inspections are given in the annexed Tables:—

Nature of Workshops Inspected.	Number on Register.	Number of Inspections.
Bakers and Sugar Boilers	196	592
Tailors	207	593
Dressmakers	224	235
Milliners	58	76
Bootmakers	67	38
Carpenters and Joiners	40	48
Laundries	21	40
Bottlers	29	7
Wheelwrights and Smiths	37	13
Printers and Bookbinders	17	18
Packers	23	29
Cabinet Makers and Upholsterers	34	24
Basket, Blind, and Mat Makers	8	23
Picture Frame Makers	16	6
Piano Manufacturer	1	1
Chaffcutter	1	3
Engravers and Jewellers	9	8
Tobacco Manufacturers	4	1
Sail Makers	5	7
Leather Workers	12	1
Waggon Builders and Engineers	39	26
Oilskin Manufacturers	9	16
Enamel Works	1	4
Cycle and Machine Manufacturers	15	9
Total	1,073	1,818

Notices of New Workshops from Inspector of Factories under Factory and Workshop Act, 1901, Sec. 127, Sub. 3 = 36.

Notices from Inspector of Factories *re* Sanitary Defects in Workshops, under Factory and Workshops Act, 1901, Sec. 5, Sub. 1 = 4.

Notices sent by Sanitary Authority to Inspector of Factories under Factory and Workshops Act, 1901, Sec. 133 = 56.

Notices *re* Overworking sent by Sanitary Authority to Inspector of Factories = 4.

NUISANCES IN WORKSHOPS.

	Bakers.	Tailors.	Dressmakers.	Carpenters.	Enamel Works.	Cabinet Makers.	Milliners.	Basket and Blind Makers.	Printers.	Smiths.	Engineers.	Laundries.	Bottlers.	Bootmakers.	Waterproof Manufacturers.	Chaff Cutters.	Cycle Manufacturers.	Jewellers.	Packers.	Sail Makers.
W.C. accommodation provided	3	4	...	2	1	1	...	...	2	...	1	...	...	...	...	...	...	...	1	...
Drains trapped and repaired	10	25	7	...	1	2	2	...	3	...	1	1	...	...	1	1	...	1	3	...
Flushing apparatus provided	5	7	7	...	...	2	...	...	...	...	1	1	...	...	1	...	...	...	...	...
W.C.'s cleansed and repaired	1	8	2	...	...	...	...	...	...	...	...	1	...	1	...	...	2	...	...	...
Limewashing	85	9	2	...	...	4	...	1	7	...	...	...	...	1	...	...	...	7	...	...
Workrooms ventilated	3	9	4	...	...	...	1	...	...	...	...	3	...	...	1	...	...	...	...	...
Paving roofs, &c., repaired	4	17	4	...	...	1	1	...	...	2	...	1	...	...	...	...	...	...	...	1
Inside W.C. ventilated	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	..
Defective smoke stacks	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Accumulations	14	4	2	...	...	...	...	...	1	...	1	...	1	...	2	...	...	1	1	...
Manure pits erected and drained	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...
Workrooms overcrowded	...	...	5	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Water put on	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
Total	125	83	33	2	2	10	5	1	13	5	4	8	1	2	5	1	2	2	13	1

SHOP HOURS ACT.

Nature of Shops Inspected.	Number of Inspections.	Employing Young Persons.	Employing Females.	Seats Provided.
Drapers	149	127	142	142
Boot Dealers	85	70	51	51
Grocers	149	132	4	4
Butchers	103	74	...	...
Hairdressers and Tobacconists	99	77	50	50
Newsagents and Stationers	74	62	44	44
Confectioners	85	37	68	68
Public Houses	71	10	59	59
Chemists	34	28	1	1
Fruiterers	67	42	25	25
Ironmongers	40	34	3	3
Jewellers	11	8	1	1
Outfitters	53	40	1	1
Furniture Dealers	12	6	3	3
Fancy Dealers	50	33	44	44
China Dealers	5	3	...	...
Restaurants	18	5	14	14
Seedsmen	3	1	...	..
Cycle Dealers	7	6	...	...
Total	1115	797	510	510

WATER SUPPLY.—The district is provided with an abundant supply of pure soft water obtained from the Taff Fawr Watershed of the Brecon Beacons. To this excellent water supply the comparative immunity of the town from enteric fever and diarrhœal diseases must be largely attributed.

To Mr. C. H. Priestley, M.I.C.E., the Engineer to the Cardiff Waterworks, I am indebted for the following information relating to these works. The gathering ground is situated to the north of the South Wales Coalfield, on the old red sandstone formation, about 35 miles from Cardiff. The mean annual rainfall during the years 1889-1898 at the stations at the gathering ground was as follows:—Cantreff Reservoir, elevation 1,120 ft., 62·72 in.; Beacons Reservoir, elevation 1,328 ft., 76·05 in.; Summit of Tyle Brith, elevation 2,350 ft., 68·69 in. The watershed consists of 10,400 acres, and the works, authorised by the Cardiff Corporation Act of 1884, consist of three storage reservoirs with a total capacity of 1,220 million gallons, three balancing reservoirs at Cefn, Blackbrook and Rhubina respectively, a high service reservoir and filter beds at Rhubina for the supply by gravitation of the high level districts, and the necessary conduit pipes and other works. The conduit or aqueduct connecting the storage reservoir passes down the Taff Valley to Rhubina, and from there to the two storage reservoirs already existing at Lisvane and Llanishen, about four miles from Cardiff. In connection with these works a reservoir has been constructed at Penylan, with a capacity of 3 million gallons, and a water tower to supply the highest houses in the immediate neighbourhood. Extensions are also now being carried out in connection with the Penarth High Level supply, consisting of a new pumping engine and boiler at Cogan, new mains between Cogan and Llandough reservoirs, and a new service reservoir at Leckwith, with a capacity of two million gallons. It is also intended to construct four new filter beds and an additional covered service reservoir at the "Heath" estate. Owing to the increase of the district to be supplied with water further works have been carried out consisting of an open unfiltered water reservoir, a covered service reservoir for filtered water, and three additional filter beds at Rhubina.

After the passing of the Act these works were immediately proceeded with, and it was found that No. 1 Reservoir could be advantageously enlarged, so that the total storage has been considerably increased.

At the same time a new reservoir was constructed at Llanishen and completed in 1886, giving an additional storage capacity of some 317 million gallons. This reservoir immediately djoins the Lisvane reservoir previously built by the Company which owned the Water Works previous to their purchase by the Corporation in 1879. The construction of the Llanishen Reservoir necessitated the removal of the old filters which occupied a site in the middle of the new reservoir. Land was procured near an estate known as the "Heath," about two miles from the centre of Cardiff, and three filter beds were built of sufficient capacity to filter 1,000,000 gallons each per 24 hours, allowing 2·78 gallons per superficial foot of filtering area per hour. A covered service reservoir was also constructed here with a capacity of 1,300,000 gallons. These filters becoming inadequate to the requirements of the town, three additional filter beds were constructed of similar capacity, and these are now working to their full efficient delivery, and it will soon be necessary to enlarge the service reservoir and construct more filters. The filtering material is composed of shingle, gravel and sand, most of it coming from Bideford.

The first storage reservoir connected with the new works, and known as the Cantreff Reservoir (No. 2 Reservoir), was commenced in March, 1886, and opened for use in September, 1892.

The embankment of the reservoir is 1,080 feet above Ordnance datum, and the 4,000 acres of watershed above the reservoir (chiefly mountain pasture) rises to a height of 2,910 feet above Ordnance datum at the Brecon Beacons.

The capacity of the reservoir when full is 522 million gallons. Simultaneously with the building of the Cantreff Reservoir the aqueduct and balancing reservoirs were constructed. The aqueduct consists of a line of iron pipes 29-in. and 24-in diameter. The balancing reservoirs were constructed at Cefn, Blackbrook and Rhubina, each with a capacity of just over half a million gallons.

The covered service reservoir which receives the water after filtration at Rhubina supplies the high level district of Llandaff and Whitchurch, Llanishen, &c.

Immediately after the completion of the Cantreff Reservoir the Beacons Reservoir (No. 1 Reservoir) was proceeded with and completed in September, 1897. Powers were obtained in 1894 for enlarging the original capacity of this reservoir to 345 million gallons with a water area of 51 acres.

The Corporation have Parliamentary powers to construct another storage reservoir in the Taff Fawr Valley (No. 3 Reservoir). This will be the largest of the series, and will have a capacity of 906 million gallons. In addition to the Taff Fawr sources of supply the Cardiff Corporation have power to abstract three million gallons of water per day from the River Ely, as well as to take the water from the drainage area of 2,200 acres at Lisvane and Llanishen, all of which water is suitable for trade and sanitary purposes and might be made use of by means of duplicate mains.

It is evident from the above description of the works by the Engineer that Cardiff will have an ample supply of excellent water for many years to come.

As usual with surface waters from the Old Red Sand Stone the water is soft, containing about four degrees of hardness, and is sometimes peaty and turbid before filtration. It does not, as is frequently the case with soft surfaces waters, appear to have any solvent action upon lead, and no cases of lead poisoning have been brought to my notice as due to this cause. The water, however, has a corroding action upon iron main and service pipes, producing in these obstructive deposits of oxide of iron.

Professor Percy Frankland, F.R.S., was consulted upon this matter, and from his report it would appear that the remedy must be found in the application of some suitable protecting lining to the interior of the water pipes.

Acting upon the recommendation of the Water Engineer, it has now been decided to utilize for street watering, sewer flushing, and other sanitary purposes, the water from the Old Water Works at Ely, no longer in use for the supply of drinking water. For this purpose it will be necessary to duplicate the mains in certain streets, and to pump the water into the existing reservoir at Penhill, no longer required for the present service of drinking water. In my opinion this work, when complete, will be of enormous advantage from a sanitary point of view, as it will enable the Health Committee to carry out an efficient system of street watering and of flushing the street gully grids. The streets paved with wood are at times much in need of efficient cleansing, the cab stands still more so, and the street gullies depend for flushing largely upon the rainfall. In very dry summers it has been necessary to curtail, or stop altogether, the use of water from the Taff Fawr source for the above purpose, and also for the flushing of sewers, at the very time when, for the benefit of the community, the streets and sewers and street gullies require an unusual amount of cleansing and flushing.

Samples of water from the undermentioned sources have been examined chemically and bacteriologically every month during the year, and the following are the results of the most recent analyses performed by Dr. Savage and Mr. Sugden at the Public Health Laboratory:—

Bacteriological Examination of samples of Cardiff Water.—Public Supply.

Description of the Water.	Number of Organisms per C.C.		Remarks.
	At 20° C.	At 37° C.	
Sample from—			
Beacon's Reservoir	69	33	
Cantreff Reservoir	30	5	
Rhubina Filters	32	1	B. Coli present in 40 C.C.
Heath Filters	400	0	The colonies growing at 20° C. were chiefly liquefying colonies.
Lisvane Reservoir	112	2	B. Coli present in 40 C.C.
Llanishen Reservoir	11	0	B. Coli present in 40 C.C.

CHEMICAL ANALYSIS OF SAMPLES OF CARDIFF WATER SUPPLY. RESULTS ARE STATED IN PARTS PER 100,000.

Source.	Appearance—2 ft. layer.	Reaction.	Total hardness.	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Phosphates.	Sediment.
Beacon's Reservoir... ...	Yellowish. Fairly clear ...	Very faintly. Alkaline.	2·2° H	·75	·0034	·0110	Faint traces	Fair amount. Vegetable debris. Various algæ. A few animalculæ.
Cantreff Reservoir	Yellowish. Fairly clear ...	„ „	2·4° H	·85	·0036	·0116	do.	Fair amount. Various algæ, desmids, diatoms. A few animalculæ.
Llanishen Reservoir ...	Yellowish-green Fairly clear ...	Alkaline.	2·9° H	·8	·0033	·0108	do.	Small amount. Vegetable cells and debris. A few animalculæ.
Lisvane Reservoir	„ „ „ „ ...	„	3·1° H	·85	·0032	·0124	do.	Small amount. Finely divided vegetable debris.
		„	3·1° H					Animalculæ rare.
Rhubina Filtered	Yellowish-green. Clear ...			·8	·0024	·0086	do.	Minute traces only. Animalculæ rare.
Heath Filters	Yellowish-green. Clear ...	„	3·4°H	·8	·0026	·0098	do.	Minute traces only. Animalculæ rare.

MEAT INSPECTION.—The inspection of meat and other articles of food has been carried on as usual, with no change in or addition to the staff of inspectors, during the year. No private slaughter houses exist within the limits of the Borough, all the slaughtering being done in the Public Abattoirs belonging to the Cardiff Corporation. It is comparatively easy therefore to exercise an efficient inspection of meat before it leaves the slaughter houses or is exposed for sale in markets or shops.

New and convenient premises have been recently constructed at the Roath Slaughter House for the detention and isolation of carcases and internal organs suspected to be diseased or unsound, with a *post-mortem* room and suitable appliances attached. As will be seen in this Report, a considerable proportion of the meat condemned as unfit for food was affected with Tuberculosis.

The practice which I have followed with respect to the condemnation of such carcases is in accordance with the recommendations of the Royal Commission on Tuberculosis, 1898. At a recent Congress on Tuberculosis held in London, Professor Koch, of Berlin, expressed the opinion that Tuberculosis could not be transmitted from animals to man. This view has not, however, been generally accepted, and pending further inquiries upon the subject, the Local Government Board has issued the following instructions in a Circular, dated 6th September, 1901 :—

Circular.

Councils of Metropolitan and other Boroughs, and of Urban and Rural Districts.

TUBERCULOSIS.

Local Government Board,
Whitehall, S.W.,
6th September, 1901.

SIR,

I am directed by the Local Government Board to state that at the recent Congress on Tuberculosis Professor Koch called in question the correctness of the opinion that Tuberculosis can be transmitted from animals to man. The views expressed by Professor Koch on this subject have not received the general assent of scientific men ; but, having regard to the great importance of the matter, His Majesty's Government have thought it right to accede to a request made by the Congress that there should be an inquiry with respect to it. A Royal Commission has accordingly been appointed to inquire and report whether Tuberculosis in animals and man is one and the same disease ; whether animals and man can be reciprocally infected with it ; under what conditions, if at all, the transmission of the disease from animals to man takes place ; and what are the circumstances favourable or unfavourable to such transmission.

The Board are desirous, however, of impressing upon the local authorities concerned that pending the investigations and report of the Royal Commission, there should be no relaxation on their part or on that of their officers in the taking of proper measures for dealing with milk from tuberculous cows and with tuberculous meat which may be intended for the food of man. It is, in the opinion of the Board, of much importance that these measures should continue to be taken, and they rely on this being done.

At the same time the Board may observe that representations have been made to them to the effect that the action of the officers of local authorities in the seizing of tuberculous meat is not uniform. The Royal Commission on Tuberculosis, in the report which they made in 1898, referred to the degree of tubercular disease which should cause a carcase, or part thereof, to be seized. They stated as follows :—

" We are of opinion that the following principles should be observed in the inspection of tuberculous carcases of cattle :—

(*a*) When there is miliary tuberculosis of both lungs ... } The entire carcase and all the organs may be seized.

(*b*) When tuberculous lesions are present on the pleura and peritoneum ... ... }

(*c*) When tuberculous lesions are present in the muscular system, or in the lymphatic glands embedded in or between the muscles	The entire carcase and all the organs may be seized.
(*d*) When tuberculous lesions exist in any part of an emaciated carcase	
(*a*) When the lesions are confined to the lungs and the thoracic lymphatic glands	The carcase, if otherwise healthy, shall not be condemned, but every part of it containing tuberculous lesions shall be seized.
(*b*) When the lesions are confined to the liver	
(*c*) When the lesions are confined to the pharyngeal lymphatic glands	
(*d*) When the lesions are confined to any combination of the foregoing, but are collectively small in extent ...	

"In view of the greater tendency to generalisation of tuberculosis in the pig, we consider that the presence of tubercular deposit in any degree should involve seizure of the whole carcase and of the organs.

"In respect of foreign dead meat, seizure shall ensue in every case where the pleura have been 'stripped.'"

The Board drew attention to this matter in the circular letters which they addressed to the Councils of Boroughs and Urban and Rural Districts on the 11th March, 1899, and they desire again to refer to it and strongly to urge upon the Council to direct those of their officers who are employed as Meat Inspectors to act in accordance with the principles laid down by the Royal Commission.

It is also of much importance that a person who is to act as a Meat Inspector should possess proper qualifications for the office. He should, as was pointed out by the Royal Commission, be acquainted with—

(*a*) The law of meat inspection.

(*b*) The names and situations of the organs of the body.

(*c*) Signs of health and disease in animals destined for food, both when alive and after slaughter.

(*d*) The appearance and character of fresh meat, organs, fat and blood, and the conditions rendering them, or preparations from them, fit or unfit for human food.

The Board trust that in making appointments of officers on whom will devolve the duty of acting as Meat Inspectors, the Council will satisfy themselves that the person appointed possesses adequate knowledge on these subjects.

The Board may at the same time draw attention to Article 19 (7) of their General Order of the 23rd March, 1891, with respect to the duties of an Inspector of Nuisances in relation to the inspection and seizure of meat. There is a similar provision in Article 19 (6) of the Order in force in London, viz., the Sanitary Officers (London) Order, 1891.

Any Inspector of Nuisances or Sanitary Inspector to whom either of these Orders applies is required in any case of doubt in connection with the inspection and seizure of meat to report the matter to the Medical Officer of Health, with the view of obtaining his advice thereon. The Board think it desirable that any such Inspector of Nuisances or Sanitary Inspector should be reminded of his duty in this respect.

I am Sir,

Your obedient Servant,

S. B. PROVIS,

Secretary.

The Town Clerk, *or*
The Clerk to the Urban *or*
Rural District Council.

The staff of Inspectors of Meat and Food in the department of the Medical Officer of Health comprises the following :—Mr. C. Moir, M.R.C.V.S., Veterinary Surgeon to the Corporation, is the Chief Inspector, and by an arrangement between the Health Committee and the Property and Markets Committee, Mr. N. Rees, the Superintendent of the Roath Abattoirs, and three of his Assistants, are appointed to assist in the Inspection of Meat at the Public Slaughter Houses. A special Inspector, Mr. Macgregor, who was formerly a butcher, has been appointed for the purpose of inspecting food in shops. Further, the Cardiff Port Sanitary Authority appointed the Chief Port Inspector, Mr. D. Jenkins, Inspector under the Contagious Disease (Animals) Acts, to carry out the "Orders" of the Board of Agriculture made under that Act.

The following Table gives the amount of meat in pounds, found by the Medical Officer of Health to be unfit for food, and destroyed either with the consent or by an order of a Magistrate, in each year during the period 1893-1902 :—

Year.	Meat.
1893	6,214 lbs.
1894	3,209 ,,
1895	4,523 ,,
1896	3,896 ,,
1897	10,824 ,,
1898	9,929 ,,
1899	14,205 ,,
1900	21,217 ,,
1901	33,696 ,,
1902	43,675 ,,

During the year 1902 the number of animals slaughtered in the Public Slaughter-houses in the Borough was as follows :—

	Roath Abattoir.	Canton Abattoir.
Beasts...	7,400	954
Sheep...	40,917	6,256
Calves	4,011	372
Pigs	21,200	3,936
	73,528	11,518

UNSOUND MEAT SEIZED OR SURRENDERED DURING THE YEAR 1902.

Place of Seizure.	Number of Animals.	Number Condemned by Magistrate.	Number Destroyed by arrangement with Owner.	Total Weight in lbs.
Roath Slaughter-house	66	...	66	34,452
Canton do.	9	...	9	1,544
Ice House	2	...	2	170
Total	77	...	77	36,166

The nature of the diseases detected in each case was as follows :—

Tuberculosis	47 Beasts.
,, ...	10 Pigs.
Injuries	4 Sheep.
,, ...	4 Pigs.
,, ...	2 Calves.
Pyæmia	3 Pigs.
,, ...	1 Beast.
Decomposed	2 Sheep.
Acute Fever	1 Pig.
Enteritis	1 Pig.
Suspected Swine Fever...	1 Pig.
Erysipelas	1 Pig.

OTHER ARTICLES OF FOOD SEIZED OR SURRENDERED DURING THE YEAR 1902.

Place of Seizure.	Description of Articles Seized.	Condemned by Magistrate.	Destroyed by arrangement with owner.	Total Weight in lbs.
Shop	16 Pieces of Beef		1	95
,, ...	Poultry		1	18
,, ...	1 Cask of Pigs' Feet		1	280
,, ...	2 Pieces of Beef		1	4
,, ...	1 Piece of Pork		1	3
,, ...	10 Pieces of Mutton		1	19
,, ...	10 Groat Puddings		1	10
,, ...	1 Basket of Peas		1	20
,, ...	1 Basket of Bananas		1	12
,, ...	Poultry		1	40
,, ...	Pork		1	20
Ice-house	9 Pieces of Beef		1	120
,, ...	21 Boxes of Fish		1	2,352
,, ...	6 Boxes of Fish		1	670
Stores	44 Boxes of Fish		1	1,008
,, ...	23 Baskets of Peas		1	920
Great Western Railway Station...	2 Casks of Fish		1	392
,, ,, ...	5 Boxes of Fish		1	336
,, ,, ...	5 Barrels of Fish		1	980
Canton Slaughter-house ...	1 Box of Fish		1	28
Cardiff Market	1 Pig's Head	1	...	14
St. Mary Street	1 Truck of Sprats	1	...	168
Total	...	2	20	7,509

MIDWIVES' ACT, 1902.

During the year the Medical Officer of Health submitted to the Health Committee the following report upon the administration of the Midwives Act, 1902:—

"In accordance with your instructions, I beg to report upon the administration of the Midwives Act, 1902.

By a recent resolution of the Council of the County Borough, all the powers and duties conferred upon the Council, as the Local Supervising Authority, have been delegated to your Committee.

The Act, with the exception of certain Clauses in Section 1, comes into operation on the 1st April, 1903, and is intended to secure the better training of Midwives, and to regulate their practice.

On the passing of the Act, the Lord President of the Council will take steps to form a Central Midwives Board, upon whom will devolve the duty of regulating the issue, to Midwives, of certificates to practice.

The Local Supervising Authority will have very responsible and extensive duties in connection with the supervision of all Midwives certified under the Act, and practising within the area of their jurisdiction.

The first Section of the Act provides that after the 1st April, 1905, no woman shall use any title implying that she is a midwife unless she is certified under the Act; and, further, that after 1st April, 1910, no woman shall, for gain, attend women in childbirth, otherwise than under the direction of a medical man, unless she is so certified.

The Act provides that, within two years from the 1st April, 1903, any woman practising as a midwife may be certified under the Act, provided she holds certain qualifications specified in the Act. Under this provision, therefore, most of the Midwives now practising will, immediately on the passing of the Act, apply to be certified, and many others will probably avail themselves of the same provision until the 1st April, 1905, when all new certificates will be granted under the conditions to be laid down by the Central Midwives Board.

The duties which will devolve upon your Committee when the Act comes into force will comprise—

(1) The general supervision of all Midwives practising within the Urban Sanitary District of Cardiff in accordance with the rules to be laid down by the Central Midwives Board.

(2) The investigation of charges of malpractice or negligence on the part of any midwife.

(3) The suspension of any midwife from duty, with a view of preventing the spread of infectious disease; and the reporting of certain specified matters to the Central Midwives Board.

The Local Authority is also required to give due notice of the effect of the Act to all persons at present using the title of Midwife. I would advise, therefore, that your Committee should give instructions to your Medical Officer of Health to prepare printed notices explaining the provisions of the Act, to be issued to all practising Midwives some short time before the Act comes into operation."

Subsequently the Committee resolved that the Medical Officer of Health should administer the Act, under the Committee.

DISINFECTION.—In March 1902, the Health Committee resolved that a new Disinfecting Station be erected on land belonging to the Corporation in Sloper Road. The building was constructed without delay, and the station is now in complete working order.

Up till that date the disinfecting of infected articles throughout the Borough was carried out exclusively in the disinfecting apparatus at the Hospital for Infectious Diseases.

The new building comprises a yard containing stables, sheds for vans, coal houses, etc. The disinfecting is effected by saturated steam in a full-sized Washington Lyon's Steam Disinfector, placed in an air-tight partition separating the infected from the disinfected rooms. These rooms contain all the necessary fittings, and the most modern and efficient appliances.

The number of articles of clothing and bedding disinfected during the year amounted to 28,092, including 64 articles destroyed.

The system of disinfecting premises is now being gradually changed, the walls and surfaces of rooms being thoroughly covered with liquid formalin distributed by means of a suitable spray apparatus.

In some cases the rooms are fumigated with the vapour of formaldehyde in lieu of sulphur dioxide gas formerly used.

POWERS AND DUTIES OF COMMITTEE.

The following Standing Order was adopted by the Council relating to the powers and duties of the Health and Port Sanitary Committee to be in force until the 9th November, 1903, the order is intended to facilitate the business of the Committee and to ensure the speedy abatement of nuisances:—

"The Council delegate to the Health and Port Sanitary Committee (1) all the powers duties, authorities, and discretions vested by law in or exercisable by the Council with respect to nuisances, dairies, cowsheds and milkshops, bakehouses, lodging-houses (common and seamen's), hours of assistants in shops, sale of food and drugs, prevention of pollution of rivers, canal boats, factories and workshops, scavenging and cleansing of streets, removal of refuse from houses, destructors, housing of the working classes (except the building of a common lodging-house), prevention of infectious diseases, regulation of alkali works, theatres,, and music halls, and all other sanitary matters in the Borough, and the administration of the Midwives' Act, 1902 (so far as the Corporation are concerned); (2) the consideration of all reports by the Medical Officer of Health and the Public Analyst, and the making of such recommendations thereon as they may deem advisable; (3) all the powers, rights, and duties vested in the Council as the 'Cardiff Port

Sanitary Authority' by the Order of the Local Government Board, dated 15th September, 1894, with power (without first obtaining the approval of of the Council) to cause such proceedings as they may direct to be instituted against any person or persons to enforce the provisions of the said order relating to nuisances and polluted wells, &c., infectious and epidemic diseases and hospitals; (4) also authority (without first obtaining the approval of the Council) to take all necessary proceedings for enforcing the law as to dairymen furnishing list of customers in certain cases, and to grant or not grant licenses for seamen's lodging-houses, and direct prosecutions for breaches of the law relating thereto; (5) also full power and authority (without confirmation by the Council) to deal with all matters relating to infectious diseases and nuisances, to serve all official notices as may be necessary in connection therewith, and to take legal and other proceedings where necessary to enforce compliance with official notices, and as may be necessary in connection herewith; (6) to engage and direct all such officers, workmen, and servants as may be required for the purpose of this Committee; to transact all business of a general character in relation to sanitary matters not specially referred to any Committee or Committees appointed by the Council, and to give such directions as they may think fit for the information and guidance of the Medical Officer of Health; (7) and generally do all such acts, matters, and things as may be necessary or incidental to the execution of the aforesaid powers, authorities, and discretions; provided always that except as herein specified, all proceedings of the said Committee be subject to confirmation or otherwise by the Council aforesaid."

Summary of Work Performed by the Officers of the Medical Officer of Health's Department.

The following tables show the nature and extent of the administrative work of the department. The work is carried out by Mr. D. Vaughan, Chief Inspector of Nuisances, and his assistants, acting under the supervision of the Medical Officer of Health, and I have pleasure in reporting that the Inspectors have performed their difficult duties in a very satisfactory manner.

For the purposes of inspection, the Borough is divided into six districts as follows:—

		Name of District Inspector
District No. 1 comprising ...	Canton Ward ... Riverside Ward ...	T. W. Warren, Cert. San. Inst.
,, No. 2 ,,	Splott Ward ... part of Adamsdown Ward	W. Fisher, Cert. San. Inst.
,, No. 3 ,,	Park Ward ... part of Cathays Ward ...	F. Glover, Cert. San. Inst.
,, No. 4 ,,	Central Ward ... part of Cathays Ward ... and part of South Ward ...	S. Evans, Cert. San. Inst.
,, No. 5 ,,	South Ward ... Grangetown Ward	J. Strange, Cert. San. Inst.
,, No. 6 ,,	Roath Ward ... part of Adamsdown Ward	S. Jeffery, Cert. San. Inst.

HOUSE INSPECTION FOR THE YEAR 1902.

CENTRAL WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Gough Street	66	3	2	...	2	...	64	...	64	58	...	27
Mary Ann Street	48	3	1	3	...	...	44	...	44	36	2	17
Millicent Street ...	58	2	2	1	...	...	58	1	58	34	6	23
Jonathan's Court ...	2	...	...	...	...	...	2	...	2	2	...	...
Bryant Court ...	2	...	...	...	...	...	2	...	2	2	...	...
Jenkins' Court ...	5	...	...	...	...	..	3	...	3	3	...	...
Evans' Court ...	2	...	...	...	...	...	1	...	1	1	...	...
Gulliver's Court ...	2	...	...	...	...	...	1	...	1	1	..	...
David Street ...	27	1	...	...	...	2	26	...	25	21	1	8
Love Lane ...	35	6	2	1	...	...	34	...	34	34	7	7
Peters' Court ...	2	...	...	...	...	...	2	...	2	2	...	...
French Cottages ...	4	...	...	...	...	...	2	...	2	2	...	...
Love Lane Court ...	4	...	...	...	...	...	4	...	...	...	...	...
Stanley Street ...	3	...	...	...	...	...	3	...	2	3	...	...
East Terrace ...	21	2	1	...	1	...	21	...	21	20	3	4
Little Frederick Street	35	3	2	2	...	...	33	...	31	28	2	8
Rodney Street ...	18	1	...	1	...	...	18	...	18	17	1	3
Homfray Street ...	26	...	...	...	...	...	26	...	24	7	...	...
Ruperra Street ...	16	5	...	2	...	...	16	...	16	12	1	4
Charlotte Street ...	4	...	...	...	...	...	2	...	2	...	...	...
Bute Terrace ...	34	4	2	1	1	...	36	...	23	3	...	15
Union Street ...	79	4	...	3	...	..	76	...	76	71	14	25
Tredegar Street ..	47	...	2	1	...	...	46	...	43	28	6	10

SOUTH WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
South William Street ...	6	..	...	...	...	...	6	...	4	4	2	4
Adelaide Street ...	48	...	...	...	...	...	47	...	47	4	5	4
Adelaide Place ...	8	...	...	2	2	...	9	...	8	7	...	3
Evelyn Street ...	36	...	...	3	...	...	36	...	32	28	6	12
Dudley Place ...	8	...	...	2	...	...	8	...	8	7	2	10
Dudley Street ...	24	...	...	...	...	...	24	...	24	16	1	7
Margaret Street ...	44	1	1	3	3	...	44	...	44	38	1	9
Harrowby Street ...	40	2	...	2	2	...	39	...	39	39	1	1
Old Sea Lock ...	10	...	...	...	...	...	7	...	5	4	...	...

CATHAYS WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Norman Street	15	...	1	3	...	...	13	...	13	13	...	10
Alexander Street	40	2	...	...	...	...	38	...	38	31	...	21
Daniel Street	60	...	...	4	...	...	58	...	...	58	...	27
Hirwain Street	52	10	...	1	...	...	52	...	52	52	14	18
Treherbert Street	45	5	4	1	...	...	45	1	43	43	20	25
Darran Street	23	4	...	2	...	...	23	...	23	23	7	9
Treorky Street	27	4	...	2	...	...	26	...	26	26	23	22
Minister Street	20	2	2	1	...	...	20	...	20	19	4	6
Crwys Road	65	...	...	1	...	...	110	...	...	23	...	19

PARK WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with Water.	Dampness of Premises.	Other Causes.
Donald Street	51	3	...	...	1	...	51	...	51	48	12	20
Arabella Street	56	9	1	11	...	...	56	...	56	56	10	10
Violet Row	12	...	...	...	..	..	12	...	12	12	...	...
Inverness Place	58	7	...	3	...	...	58	...	58	55	16	18
Mackintosh Place	57	2	2	1	..	...	66	...	49	28	11	12
Crwys Place	23	1	1	1	...	...	23	...	23	23	2	4
Vere Street	18	4	..	4	...	...	18	...	18	16	1	1
Crwys Road	18	1	1	1	...	...	21	...	14	14	2	5

ADAMSDOWN WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not Ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with Water.	Dampness of Premises.	Other Nuisances.
Victoria Street	30	4	...	4	...	...	30	...	30	30	...	21
Ivor Street	16	...	1	3	...	..	16	...	16	16	...	9
Copper Street	17	...	...	...	...	..	17	...	17	14	4	12
Davis Street	32	...	...	3	...	...	31	...	31	31	...	16
Buzzard Street	17	1	1	...	1	.	16	...	16	16	...	21
Sandon Street	17	...	...	2	1	.	16	...	16	15	...	11
Sandon Place	31	...	...	5	...	..	31	..	31	30	...	18
Meteor Street	42	1	...	1	...	..	42	...	41	36	...	..
Adam Street	87	2	...	7	...	..	94	...	91	66	...	15
Kite Street	5	...	...	4	...	...	5	...	5	...	...	..
Adamsdown Square	25	...	1	1	...	...	26	...	25	19	...	3
Platinum Street	36	...	1	1	...	...	36	...	36	36	2	12
Zinc Street	35	...	...	1	...	...	35	...	35	34	...	3
Galston Place	11	...	...	...	...	...	11	...	11	11	...	...
Galston Street	32	...	...	...	...	...	32	...	32	31	...	...
Cycle Street	29	...	...	...	...	...	29	...	29	29	3	17

RIVERSIDE WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with Water.	Dampness of Premises.	Other Nuisances.
Halket Street	58	6	2	...	...	...	58	...	58	56	8	8
Wyndham Crescent	107	8	2	5	20	...	125	...	107	75	11	11
Wyndham Road	83	5	...	7	11	...	83	...	83	78	7	14

CANTON WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defected W.C.	Defective Traps.	Scullery Sinks connected direct with Drains.	Number of Water Closets.	Inside Closets not Ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Loftus Street	19	2	...	3	...	..	19	...	19	19	9	9
Gray Street	59	1	...	...	...	...	59	...	59	40	14	7
Pontcanna Place	23	1	...	1	...	...	23	...	23	22	2	6
Ethel Street ...	109	21	8	14	...	...	109	...	109	109	34	44
Daisy Street	83	14	5	9	...	...	83	...	83	83	29	39
Ivy Street	23	4	...	5	2	...	23	...	21	3	...	8
Fern Street	9	...	...	1	...	..	9	...	9	9	...	1
Regina Terrace	4	...	...	...	...	...	4	...	...	...	...	...
Romilly Road	23	3	1	4	...	...	29	...	9	9	3	3

ROATH WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drain.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Helen Street	80	9	2	7	3	...	80	...	80	80	4	11
Nora Street	74	1	1	1	...	...	75	...	73	73	13	21
Fort Street	13	...	...	...	...	...	13	...	13	13	...	1
Fox Street	12	...	...	...	...	...	12	...	12	12	...	...
Tyler Street	16	...	...	...	...	...	16	..	16	16	1	...
Booker Street	14	...	...	...	...	...	15	...	14	13	...	...
Richards Terrace	87	1	1	2	...	...	134	...	87	53	...	5
Broadway	193	7	5	3	3	...	194	...	188	171	23	46

GRANGETOWN WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Trap.	Scullery Sinks connected direct with Drains.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Knole Street	51	3	1	3	4	...	50	...	50	49	5	15
Oakley Street	69	9	...	10	2	...	70	...	70	70	1	5
Hewell Street	74	4	...	8	1	...	74	...	71	71	4	15
Chester Street	45	3	...	8	14	...	45	...	45	39	1	6
Virgil Street	11	1	...	1	...	...	11	...	11	11	..	...
Forrest Street	9	3	...	1	3	...	9	...	9	9	...	...

SPLOTT WARD.

NAME OF STREET.	Number of Houses Inspected.	Defective Drains.	Choked Drains.	Defective W.C.	Defective Traps.	Scullery Sinks connected direct with Drains.	Number of Water Closets.	Inside Closets not ventilated.	Outside Water Closets not ventilated.	Outside Closets not supplied with water.	Dampness of Premises.	Other Nuisances.
Bridgend Street	48	...	...	6	...	.	48	...	48	17	1	18
Burnaby Street	54	...	...	3	...	...	54	..	54	51	...	6
Coveny Street	49	...	..	5	...	...	34	...	34	45	...	29
Eyre Street	52	1	...	4	...	...	52	...	52	51	...	17
Seymour Street	70	...	...	4	1	...	70	...	51	19	...	13
Swinton Street	42	2	1	2	...	...	42	...	42	42	...	12
Habershon Street	178	...	1	6	...	...	183	...	175	106	.	77
Florence Street	17	...	...	...	...	...	17	...	17	...	...	8
Wilson Street	40	...	...	1	...	...	40	...	40	34	...	13
Cameron Street	42	...	...	1	...	...	42	...	42	34	..	15

INSPECTION OF COMMON LODGING HOUSES.—These houses are regulated by the provisions of the Public Health Act, 1875. Section 77 requires all Common Lodging Houses to be registered, and Section 80 empowers the Sanitary Authority to make Bye-Laws.

(1) For fixing and from time to time varying the number of lodgers who may be received into a Common Lodging House, and for the separation of the sexes therein.

(2) For promoting cleanliness and ventilation in such houses.

(3) For the giving of notices and the taking precautions in the case of any infectious diseases; and

(4) Generally for the well ordering of such houses.

In the year 1891 your Authority adopted Bye-laws which correspond closely with the "Model Bye-laws" of the Local Government Board.

COMMON LODGING HOUSES.

Total number on register	31
Registered rooms	124
Number of persons certified to accommodate	409
Day inspections	657
Night inspections	92

COMMON LODGING HOUSES—Continued.

W.C.'s. cleansed and repaired	17
,, supplied with water	3
Drains trapped and repaired	23
Special ventilation provided to rooms	28
Lime-washed	99
Yards paved	21
Accumulations removed	33
Registered	5
Repaired	39

SEAMEN'S LODGING HOUSES.

Total number of applications	561
,, ,, refused	72
,, ,, relinquished	311
Total number of persons licensed	171
,, ,, houses, the occupiers of which have been licensed ...	172
Maximum number of lodgers authorised to be received in the above ...	1,752
Number of day inspections...	3,767
,, night ,, ...	153
,, houses in which sanitary improvements have been effected ...	111

NATURE OF SANITARY DEFECTS :—

W.C.'s supplied with water	37
Defective water-closets	44
Defective drains	46
Defective paving in yards	58
Defective bedroom ventilation	58
Houses with walls and roofs out of repair	46
Infectious disease discovered	8
Lime-washed	387
Legal proceedings taken	4

SALE OF FOOD AND DRUGS ACT.

Food and Drugs analysed by Mr. Thomas Hughes, F.I.C., F.C.S., Borough Analyst.

Samples obtained.	Number of Samples.	Number of Genuine Samples.	Number of Samples Adulterated.	Fines.
Milk	345	333	12	£90 and costs. £4 and costs. £4 and costs. £3 and costs. £3 and costs. £2 and costs. £2 and costs. £1 and costs. £1 and costs. £1 including costs. 10s. and costs. 10s. and costs.
Milk Separated ...	4	4	—	
White Pepper ...	2	2	—	
Corn Flour ...	14	14	—	
Flour	14	14	—	
Rice	2	2	—	
Tea	2	2	—	
Baking Powder ...	2	2	—	
Coffee	10	10	—	
Arrowroot ...	1	1	—	
Sago	1	1	—	
Demerara Sugar ...	10	10	—	
Ginger... ...	10	10	—	
Bi-Carbonate of Soda	2	2	—	
Sweets ...	7	7	—	
Beer ...	22	22	—	
Bread	11	11	—	
Margarine ...	12	12	—	
Lard	3	3	—	
Cheese ...	3	3	—	
Butter	22	22	—	
Irish Whiskey ...	4	4	—	
Scotch Whiskey ...	4	4	—	
Brandy ...	4	4	—	
Rum	4	4	—	
Gin	4	4	—	
Jam	5	5	—	
Marmalade ...	5	5	—	
Golden Syrup ...	4	4	—	
Mustard ...	1	1	—	
Preserved Peas ...	1	1	—	
Condensed Milk ...	1	1	—	
Malt Vinegar ...	1	1	—	
Port Wine ...	1	1	—	
Cherry Wine ...	1	1	—	
Sweet Spirit of Nitre	3	3	—	
Total ...	542	530	12	£112 and costs.

SCAVENGING OPERATIONS.—The scavenging of this town is undertaken by the Sanitary Authority, and the work has, as usual, been most efficiently performed under the supervision of Mr. Woosey, the Superintendent of this department, from whom I have obtained the following particulars connected with the routine of the work :—

The main thoroughfares and all side streets are swept every day between the hours of 7 a.m and 5 p.m.

Shop refuse is cleared from 7.30 a.m. to 8 a.m. every morning.

All main thoroughfares cleared by 11 a.m.

Household refuse is cleared three nights weekly, commencing at 11 p.m. to 6 a.m. on Monday, Wednesday, and Friday nights. All householders are requested to place refuse in a suitable receptable in the channel in front of the house they occupy. Thirty-five horses and waggons are required three nights weekly to attend to this work.

One hundred and twenty waggon loads is the average each night from 11 p.m. to 6 a.m.

Back lanes are cleared three days weekly, from 1 p.m. to 4 p.m. Waggons go round with bells, when occupier places the ash receptable inside the yard or garden door ready for men to remove it.

At a meeting of the Health Committee in June of the year under consideration, Mr. Woosey called attention to the unsatisfactory method of cleansing the cab stands, and recommended that hydrants with 1½ inch hose should be placed on every stand to flush and clean them. This recommendation was adopted by the Committee, and the Cabs Committee were requested to make suitable arrangements for fixing the hydrants forthwith.

This very desirable and long-needed reform in the cleansing of cab stands seems likely to be shortly effected, and it is to be hoped that this method may be extended to the flushing of the wooden streets and side gullies communicating with the sewers; a method which is now being universally adopted in large towns in which the streets are paved with wood.

MAGISTERIAL PROCEEDINGS.

	Number of Cases.	Fines. £ s. d.
Proceedings under Sale of Food and Drugs Act ...	12 ...	112 0 0
,, ,, Seamen's Bye-laws	4 ...	—
,, ,, Common Lodging Houses	— ...	—
,, ,, Cowsheds and Milkshops Order ...	— ...	—
,, ,, Housing of the Working Classes Act ...	5 ...	—
,, ,, Factory Act	— ...	—
,, ,, Shop Hours Act	— ...	—
,, ,, Public Health Act	7 ...	—
,, ,, Town Police Clauses Act (Sec. 31) ...	58 ...	5 8 0
	86 ...	£117 8 0

I have the honour to be, Gentlemen,

Your obedient Servant,

EDWARD WALFORD, M.D.,

MEDICAL OFFICER OF HEALTH.

Report of Mr. D. VAUGHAN, Chief Inspector of Nuisances, and Inspector of Canal Boats, for the year 1902.

NUISANCES :—

Nuisances inspected	3,580
Notices issued	3,034
Nuisances abated without legal proceedings	3,580
,, with ,, ,,	—
Animals kept so as to be a nuisance	58
Injurious and foul accumulations	319
Nuisances from smoke	5
Stagnant water in cellars, &c.	10
Houses unfit for human habitation	1
Defective drainage	792
Drains unstopped and cleansed	390
,, trapped and repaired	50
,, tested	825
,, found defective	376
Foul and offensive W.C.'s. cleansed	86
Defective apparatus to water-closets repaired	77
Water laid on to water-closets	7
,, ,, urinals	3
,, ,, dwelling houses	50
Insufficient Ventilation	11
Overcrowding Notices	12
Dilapidated houses repaired	1,018
Dirty houses and workshops cleansed and lime-washed	132
Additional W.C. accommodation provided	7
Nuisance from lane	1
Samples of water taken from well	2

DISINFECTION :—

Houses disinfected	1,912
Articles of bedding and clothing disinfected	28,092
,, ,, ,, destroyed	64

OFFENSIVE TRADES :—

Premises visited	1,235

SLAUGHTER HOUSES AND MARKETS :—

Visits paid to slaughter houses	160
,, ,, markets	270
Articles destroyed unfit for food—Beef, 32,337 lbs.; Pork, 3,319 lbs.; Veal, 182 lbs.; Mutton, 249 lbs.; Groat Puddings, 10 lbs.; Peas, 940 lbs.; Bananas, 12 lbs.; Poultry, 58 lbs.; Fish, 5,934 lbs.	
Butchers' and Provision Shops inspected	4,941

COWSHEDS, MILKSHOPS AND DAIRIES :—

Number of Cowkeepers on Register	23
,, Milksellers ,,	532
Total	555
Number of Cowkeepers registered during the year	—
,, Milksellers registered during the year	90
Total	90

Number of visits paid to cowsheds	209
,, ,, ,, milkshops	1,488
Notices served	53
Total	1,750

COWSHEDS, MILKSHOPS, AND DAIRIES.

Particulars of Inspection.	Cowsheds.	Milkshops.
Total number of inspections	209	1,488
Found in good condition	19	483
Water closets, sinks, or drains defective	1	21
Yards badly paved and accumulations of rubbish	3	28
Infectious disease amongst persons employed	—	9

CANAL BOATS.

Number of Boats on Register	30
,, Inspections	117
,, Boats found in good condition	93
,, ,, found with defective ventilators	15
Certificates cancelled	5
Water vessels defective	6
Cabins leaking	2
Defective Chimney	1
Verbal notices served and complied with	24

LOCAL GOVERNMENT BOARD TABLE.

TABLE I.

VITAL STATISTICS OF WHOLE DISTRICT DURING 1902 AND PREVIOUS YEARS.

Year.	Population estimated to Middle of each Year.	Births.		Total Deaths Registered in the District.				Total Deaths in Public Institutions in the District.	Deaths of Non-residents registered in Public Institutions in the District.	Deaths of Residents registered in Public Institutions beyond the District.	Nett Deaths at all Ages belonging to the District.	
				Under 1 Year of Age.		At all Ages.						
		Number.	Rate.*	Number.	Rate per 1,000 Births registered	Number.	Rate.*				Number.	Rate.*
1	2	3	4	5	6	7	8	9	10	11	12	13
1892	132,895	4,776	35·8	782	163	2,560	19·2	311	...	...	2,560	19·2
1893	136,168	5,110	37·5	918	179	2,794	20·4	332	...	...	2,794	20·4
1894	139,519	5,100	36·5	722	141	2,415	17·3	263	...	...	2,415	17·3
1895	142,958	5,321	37·1	951	179	2,840	19·9	342	...	...	2,840	19·9
1896	146,479	5,591	38·1	923	165	2,826	19·2	364	31	...	2,795	19·0
1897	150,087	5,279	35·1	796	151	2,568	17·1	303	34	...	2,534	16·8
1898	153,783	5,520	35·9	870	158	2,684	17·4	312	57	...	2,627	17·0
1899	157,414	5,309	33·7	976	184	2,951	18·7	321	93	...	2,858	18·1
1900	161,452	5,198	35·2	730	141	2,745	17·0	314	78	...	2,667	16·5
1901	165,308	5,206	31·4	775	148	2,671	16·1	352	75	57	2,653	16·0
Averages for years 1892-1901.	148,606	5,241	35·2	844	160	2,705	18·2	321	...	...	2,674	17·9
1902	168,909	5,278	31·2	769	145	2,909	17·2	486	88	44	2,865	16·9

* Rates in Columns 4, 8, and 13 calculated per 1,000 of estimated population

Total population at all ages	164,420	At Census of 1901.
Number of inhabited houses	27,971	
Average number of persons per house	5·8	
Area of District in acres (exclusive of area covered by water)	6,373	

LOCAL GOVERNMENT BOARD TABLE.

TABLE II.

VITAL STATISTICS OF SEPARATE LOCALITIES IN 1902 and PREVIOUS YEARS.

Names of Localities.	COUNTY BOROUGH OF CARDIFF. (Whole District.)				EAST CARDIFF. Registration (Sub-district.)				CENTRAL CARDIFF. Registration (Sub-district.)				WEST CARDIFF. Registration (Sub-District.)			
YEAR.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all Ages.	Deaths under 1 year.
1892 ...	132,895	4,776	2,560	782	...	...	...	...	...	...	...	...	...	...	...	...
1893 ...	136,168	5,110	2,794	918	...	...	...	...	...	...	...	...	...	...	...	...
1894 ...	139,519	5,100	2,415	722	...	...	...	...	...	...	...	...	...	...	...	...
1895 ...	142,958	5,321	2,840	951	...	...	...	...	...	...	...	...	...	...	...	...
1896 ...	146,479	5,591	2,795	923	...	...	...	...	...	...	...	...	...	...	...	...
1897 ...	150,087	5,279	2,534	796	45,282	1,736	643	240	54,184	1,528	909	250	50,051	2,015	982	306
1898 ...	153,783	5,520	2,627	870	47,124	1,821	714	288	54,217	1,610	924	279	51,921	2,089	989	303
1899 ...	157,414	5,309	2,858	976	49,040	1,750	753	307	54,300	1,617	1,009	308	53,861	1,942	1,096	361
1900 ...	161,452	5,198	2,667	730	51,035	1,658	755	214	54,358	1,510	907	229	55,874	2,030	1,005	287
1901 ...	165,308	5,206	2,653	775	53,111	1,667	668	236	54,402	1,572	912	255	57,962	1,967	1,073	294
Averages of Years 1892 to 1901	148,606	5,241	2,674	844	...	...	...	...	...	...	...	...	...	...	...	...
1902 ...	168,909	5,278	2,865	769	56,613	1,694	733	241	54,541	1,624	1,010	230	60,476	1,960	1,122	298

LOCAL GOVERNMENT BOARD TABLE.

TABLE III.

CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1902.

NOTIFIABLE DISEASE.	Cases Notified in Whole District.							Total Cases Notified in each Locality.			No. of Cases Removed to Hospital from each Locality.		
	At all Ages.	At Ages—Years.						East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.	East Cardiff Regis. Sub-Dist.	Central Cardiff Regis. Sub-Dist.	West Cardiff Regis. Sub-Dist.
		Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 65.	65 and upwards.						
Small-pox	2	...	...	...	...	2	...	...	1	1	...	1	1
Cholera	...	...	...	...	...	..	...	...	...	...	...	...	...
Diphtheria	686	8	181	335	88	73	1	162	152	372	82	69	178
Membranous Croup	15	3	8	3	...	1	...	3	2	10	...	...	...
Erysipelas	169	6	6	15	17	115	10	44	60	65	...	...	...
Scarlet Fever...	1433	30	431	803	112	57	...	423	425	585	167	219	323
Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever ...	69	...	3	21	16	29	...	19	23	27	9	18	20
Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...	...
Continued Fever	7	...	1	3	...	3	...	3	2	2	...	...	...
Puerperal Fever	13	...	...	...	5	8	...	7	4	2	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...
Totals	2394	47	630	1180	238	288	11	661	669	1064	258	307	522

LOCAL GOVERNMENT BOARD TABLE.

TABLE IV.

CAUSES OF, AND AGES AT, DEATH DURING YEAR 1902.

CAUSES OF DEATH.	Deaths in or belonging to whole District at subjoined Ages.							Deaths in or belonging to Localities at all Ages.			Total Deaths in Public Institutions in the District.
	All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65	65 and upwards.	East Cardiff Reg. Sub-dis.	Central Cardiff Reg. Sub-dis.	West Cardiff Reg. Sub-dis.	
Small Pox	...	...	...	...	...	...	...	...	...	...	...
Measles	184	33	139	9	2	1	...	67	71	46	...
Scarlet fever ...	36	2	25	9	...	...	...	7	6	23	15
Whooping-cough ...	95	45	47	3	...	...	...	32	28	35	...
Diphtheria and membranous croup ...	88	3	53	31	...	1	...	14	10	64	44
Croup	3	...	3	...	...	...	...	3	...	...	...
Fever { Typhus ... / Enteric ... / Other continued	9	...	...	2	2	5	...	1	...	8	7
Epidemic influenza ...	13	1	...	...	1	8	3	3	5	5	...
Cholera	...	...	...	...	...	...	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...
Diarrhœa	55	40	11	...	...	1	3	9	15	31	2
Enteritis	43	31	4	1	1	4	2	22	12	9	1
Puerperal fever ...	7	...	...	...	2	5	...	2	3	2	1
Erysipelas	3	...	...	1	...	2	...	1	2	...	...
Other septic diseases ...	22	10	1	2	3	4	2	3	9	10	9
Phthisis	224	...	3	11	41	165	4	49	72	103	54
Other tubercular diseases	98	38	27	16	11	6	...	33	28	37	9
Cancer, malignant disease	116	...	1	...	...	84	31	35	44	37	37
Bronchitis	215	68	20	3	1	66	57	54	90	71	20
Pneumonia	256	74	68	7	11	80	16	67	88	101	24
Pleurisy	11	1	...	...	2	7	1	...	4	7	4
Other diseases of Respiratory organs ...	26	3	3	3	...	12	5	7	8	11	3
Alcoholism } ... / Cirrhosis of liver }	14	...	...	...	...	13	1	3	5	6	4
Venereal diseases ...	9	3	...	...	...	5	1	1	3	5	9
Premature birth ...	88	88	...	...	...	...	...	33	27	28	2
Diseases and accidents of parturition ...	19	...	...	...	4	15	...	4	6	9	1
Heart diseases ...	241	12	4	6	9	140	70	50	81	110	56
Accidents	99	7	16	8	13	43	12	10	64	25	38
Suicides	11	...	...	...	2	8	1	1	9	1	1
Homicide	4	2	1	1	...	...	...	1	2	1	2
All other causes ...	876	309	54	34	32	254	193	221	318	337	143
All causes	2,865	770	480	147	137	929	402	733	1,010	1,122	486

APPENDIX.

METEROLOGICAL OBSERVATIONS FOR THE YEAR 1902.

MONTH.	Attached Thermometer.	Barometer. Inches.	TEMPERATURE IN SHADE.							HYGROMETER.			RAINFALL.				DEATH-RATE per 1,000.	
			Maximum.	Minimum.	Mean of Maximum.	Mean of Minimum.	Mean of Month.	Earth. 1 foot mean.	Earth. 4 feet mean.	Dry Bulb Mean.	Wet Bulb Mean.	Relative Humidity.	Amount in Inches.	Greatest Fall in 24 hours.	Date of Greatest Fall.	Days on which 0·01 or more rain fell.	All Causes.	Seven Chief Zymotic Diseases.
January	58	30 197	59·0	15·0	36·9	36·2	36·5	42·5	42·5	41·9	40·2	86	2·60	·72	3rd	18	18·1	1·1
February	56	29·981	53·8	16·0	42·6	29·7	36·1	37·3	39·9	35·2	32·9	79	1·25	·40	22nd	9	18·3	1·2
March	58	29·922	59·0	26·5	51·1	36·5	43·8	45·1	43·7	43·9	41·9	85	2·58	·54	14th	13	15·8	1·3
April	58	29·972	59·0	26·0	50·5	34·9	42·7	44·8	46·8	45·0	42·4	81	2·36	·54	4th & 14th	9	16·0	0·6
May	55	30·019	70·8	31·0	56·8	40·8	48·8	50·9	49·9	51·3	47·2	73	2·43	·55	16th	21	15·1	1·4
June	61	29·883	81·0	39·8	64·3	49·3	56·8	57·3	54·6	58·1	54·3	77	2·86	·45	12th	20	14·1	2·2
July	65	30·040	81·0	40·0	67·5	50·2	58·8	60·9	57·2	61·2	57·1	77	2·19	·77	19th	15	13·1	2·4
August	63	29·943	74·5	41·0	66·3	51·2	58·7	63·6	58·8	59·9	57·5	85	4·21	·68	14th	23	14·9	3·7
September ...	60	30·041	71·0	35·0	63·5	46·9	55·2	58·5	59·2	56·1	53·6	83	3·13	·86	10th	15	17·6	4·7
October	60	29·968	60·8	34·5	55·8	44·5	50·1	53·3	56.4	51·4	49·7	88	3·88	·96	9th	21	17·2	4·2
November ..	56	30 073	57·0	30·2	47·6	39·1	43·3	48·6	53.7	44·8	43·3	87	4·97	1·30	8th	20	21·2	6·1
December ...	57	30 033	55·0	23·0	43·6	36·8	40·2	44·2	50·0	41·4	40·4	92	3·95	·83	28th	18	20·2	3·5

Mean Temperature of Each Month in the Year, during the Ten Years 1893—1902.

Month.	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902
January	36°8	39°4	35°5	41°6	35°9	44°0	42°2	36°5	37°9	36°5
February	42°2	43°0	29°3	40°8	43°5	41°3	41°3	39°8	37°8	36°1
March	47°1	44°4	41°6	45°9	44°6	41°1	42°1	38°3	40°6	43°8
April	53°0	47°0	47°9	48°0	46°3	46°6	47°2	46°6	46°9	42°7
May	57°3	49°7	54°4	52°9	49°1	49°9	52°0	50°4	53°5	48°8
June	62°4	57°1	58°5	61°4	59°5	55°9	59°8	55°3	57°3	56°8
July	63°6	60°3	60°0	61°4	62°7	60°6	63°8	63°9	64°2	58°8
August	64°8	57°5	59°0	58°6	60°9	61°5	63°3	59°8	60°0	58°7
September	57°1	53°2	59°7	56°8	54°4	58°8	57°8	55°5	57°7	55°2
October	51°0	50°3	46°7	46°2	51°2	52°7	48°9	49°1	49°7	50°1
November	43°2	47°2	47°2	39°9	46°1	45°7	47°0	44°5	41°5	43°3
December	42°1	41°8	40°0	40°0	42°5	46°7	37°3	43°5	40°9	40°2

The following Table illustrates the Daily Direction of Wind throughout the Year 1902.

Direction of Wind.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year 1902.
N.	2	1	...	1	4	...	1	...	...	2	...	...	11
N.E.	5	19	8	14	7	9	6	14	10	4	5	7	108
N.W.	5	2	3	...	9	1	5	2	2	7	2	5	43
S.	...	...	...	1	...	...	...	...	...	1	2	1	5
S.E.	4	4	7	6	...	2	5	2	5	4	6	2	47
S.W.	12	1	8	4	6	8	8	8	9	9	11	10	94
E.	1	1	2	2	2	5	3	3	3	...	1	2	25
W.	2	...	3	2	3	5	3	2	1	4	3	4	32

TABLE SHOWING RAINFALL AT CARDIFF IN EACH MONTH DURING THE TWENTY-SEVEN YEARS, 1876—1902.

YEAR.	JANUARY.				FEBRUARY.				MARCH.			
	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in twenty-four hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in twenty-four hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in twenty-four hours.	Date of greatest fall.
1876	1·91	12	0·68	2nd	5·23	22	0·90	14th	3·92	22	0·54	9th
1877	5·77	27	0·72	3rd	2·79	20	0·42	11th	2·66	21	0·55	23rd
1878	1·73	17	0·36	27th	3·07	16	0·87	27th	1·25	8	0·40	28th
1879	5·95	10	1·30	1st	5·95	23	0·86	20th	1·14	14	0·32	23rd
1880	0·87	11	0·42	13th	3·88	22	1·06	18th	1·90	12	0·75	2nd
1881	0·92	12	0·23	26th	4·81	15	1·12	9th	3·88	16	0·68	3rd
1882	3·19	13	0·82	2nd	2·56	15	0·60	28th	2·26	19	0·32	1st
1883	5·75	25	1·11	24th	3·73	20	0·65	10th	0·60	10	0·12	19th
1884	6·03	21	0·99	31st	4·40	22	1·35	17th	3·39	16	1·27	3rd
1885	3·71	20	0·58	9th	3·65	22	0·67	26th	1·87	16	0·53	29th
1886	5·03	23	0·91	30th	1·32	11	0·62	28th	3·97	13	0·68	20th
1887	2·76	15	0·73	7th	1·45	6	0·73	3rd	3·21	10	1·16	15th
1888	1·70	12	0·49	1st	1·07	9	1·09	2nd	4·62	15	0·76	24th
1889	1·58	10	0·58	9th	2·00	16	0·64	10th	3·89	16	1·17	8th
1890	5·21	24	0·61	26th	0·55	7	0·22	19th	1·52	14	0·28	24th
1891	3·58	13	1·26	23rd	0·05	2	0·03	2nd	1·76	16	0·31	15th
1892	2·10	15	0·70	16th	2·38	19	0·58	20th	1·18	6	0·48	15th
1893	2·38	19	0·94	12th	6·04	22	0·95	25th	0·31	6	0·14	2nd
1894	3·20	23	0·44	19th	3·68	20	0·78	17th	3·37	13	0·82	1st
1895	3·88	20	0·71	19th	0·17	4	0·08	24th	3·92	21	0·85	27th
1896	0·64	6	0·40	24th	1·39	9	0·80	13th	4·47	24	0·54	7th
1897	3·78	17	0·50	31st	5·73	21	0·70	4th	6·29	19	0·90	21st
1898	1·96	10	0·48	10th	1·71	17	0·22	18th	1·12	9	0·53	6th
1899	5·50	20	1·03	20th	3·89	13	0·79	4th	1·39	6	0·88	25th
1900	5·81	23	1·26	6th	6·40	20	0·99	18th	1·06	6	0·33	21st
1901	2·48	17	0·59	26th	1·01	10	0·25	26th	2·10	12	0·31	6th
1902	2·60	18	0·72	3rd	1·25	9	0·40	22nd	2·58	13	0·54	14th

TABLE SHOWING RAINFALL AT CARDIFF IN EACH MONTH, DURING THE TWENTY-SEVEN YEARS, 1876—1902.

YEAR.	APRIL.				MAY.				JUNE.			
	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.
1876	1·91	17	0·38	28th	0·23	4	0·12	24th	1·91	9	0·52	15th
1877	2·90	20	0·52	20th	2·47	14	0·99	16th	1·48	12	0·41	1st
1878	4·10	21	0·75	9th	4·32	24	0·71	16th	3·68	15	1·05	16th
1879	2·64	17	0·73	19th	2·85	15	0·88	29th	6·48	23	1·64	30th
1880	1 98	13	0·40	5th	1·45	11	0·46	26th	2·38	19	0·53	17th
1881	1·44	7	0·60	13th	2·62	10	1·73	17th	3·59	18	0·63	16th
1882	5·68	20	0 60	12th	2·72	13	0·59	22nd	4·28	20	0·82	5th
1883	0 67	7	0·28	26th	1·90	12	0·70	11th	1.81	17	1·16	27th
1884	1·56	11	0·43	3rd	2·37	14	0.50	2nd	1 92	9	1·11	28th
1885	2·52	16	0·67	1st	3·86	27	0·71	19th	2·61	13	1.04	23rd
1886	2·98	15	0·73	7th	6·38	19	1·52	31st	0·70	7	0·28	1st
1887	1·63	10	0·45	26th	1·94	14	0·63	19th	0·60	4	0·51	2nd
1888	1·48	13	0·30	17th	1·69	8	0·40	17th	3·69	17	0·74	17th
1889	3.54	18	0·71	30th	2·51	16	0·38	31st	0·58	6	0·41	1st
1890	1·80	14	0·34	6th	1·99	13	0·66	9th	2·46	17	0·40	10th
1891	2·02	11	0·40	2nd	3·41	17	0·75	21st	2·47	12	1·30	24th
1892	1·27	9	0·43	20th	1·35	11	0·66	27th	1·93	10	0·61	28th
1893	0·29	5	0·16	1st	2·80	12	0·72	19th	0·67	9	0·23	22nd
1894	2·05	15	0·41	23rd	2·18	15	0·50	15th	2·43	16	0·64	3rd
1895	2·08	12	0·55	24th	0·50	3	0·41	31st	1·15	9	0·32	30th
1896	2·88	14	0·80	15th	0·22	3	0·14	13th	2·48	11	1·00	7th
1897	8·18	20	0·90	13th	2·29	8	0·50	29th	5·02	11	0·90	8th
1898	1·40	10	0·28	11th	4·80	20	0·80	11th	5·06	14	0·90	4th
1899	4·34	18	0·92	20th	2.49	12	0·78	19th	1·17	5	0·45	30th
1900	1·62	12	0·42	3rd	1·89	13	0·37	21st	1·73	14	0·27	14th
1901	4·54	14	0·91	3rd	0·91	5	0·42	30th	3·00	9	1·22	20th
1902	2·36	9	0·54	4th & 14th	2·43	21	0·55	16th	2·86	20	0·45	12th

TABLE SHOWING RAINFALL AT CARDIFF IN EACH MONTH, DURING THE TWENTY-SEVEN YEARS, 1876—1902

YEAR.	JULY.				AUGUST.				SEPTEMBER.			
	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.
1876	1·91	10	0·41	6th	6·06	27	2·72	19th	7·08	19	1·28	30th
1877	4·94	18	1·27	14th	5·70	21	1·42	27th	3·25	8	1·39	27th
1878	2·01	9	0·78	23rd	10·82	24	3·64	15th	3·21	9	1·28	22nd
1879	4·00	21	0·81	19th	8·12	22	1·54	27th	4·85	17	0·69	7th
1880	6·64	23	0·95	17th	0·77	7	0·27	2nd	3·67	15	0·77	17th
1881	2·62	15	0·77	30th	6·94	20	1·45	22nd	2·09	13	0·48	22nd
1882	5·77	24	0·84	6th	6·75	16	1·14	22nd	3·94	17	0·79	28th
1883	3·56	21	0·82	20th	2·09	16	0·73	8th	6·14	19	1 53	23rd
1884	4·05	20	0·94	23rd	2·21	9	0·84	31st	1·96	15	0·64	21st
1885	0·72	6	0·31	18th	2·74	12	1·07	6th	6·51	23	1·76	10th
1886	4·85	17	0·71	29th	1·68	9	0·44	9th	4·08	14	0·75	4th
1887	1·51	13	0·85	26th	2·88	11	1·02	16th	4·07	17	1·24	1st
1888	6·83	25	1·16	7th	3·50	17	0·74	29th	1·21	8	0·52	27th
1889	3·85	12	1·16	9th	3·90	15	0·65	2nd	2·09	9	1·53	23rd
1890	3·57	19	0·73	17th	3·95	20	0·95	9th	1·57	11	0·50	17th
1891	2·21	17	0·36	2nd	7·19	22	1·10	26th	2·43	19	0·51	3rd
1892	3·83	9	1·50	12th	4·64	16	1·62	27th	3·95	14	1·38	29th
1893	3·88	17	0·80	10th	3·05	14	0·52	20th	2·03	15	0·89	28th
1894	4·22	20	0·97	24th	4·55	18	1·55	25th	2·22	10	0·80	22nd
1895	4·71	15	0·94	23rd	4·08	17	1·19	12th	1·17	10	0·40	6th
1896	1·14	8	0·35	24th	2·89	15	0·84	19th	7·34	23	1·10	17th
1897	2·51	8	0·80	6th	5·42	16	1·30	30th	6·37	13	1·38	29th
1898	0·40	2	0·20	1st	3·48	10	0·67	6th	1·94	4	1·38	29th
1899	0·32	6	0·09	1st	1·74	7	0·56	29th	2·59	13	0·74	26th
1900	0·68	8	0·27	27th	4·06	14	0·88	9th	1·32	10	0·50	26th
1901	2·58	8	1·00	23rd	4·00	14	1·30	13th	4·36	17	1·52	13th
1902	2·19	15	0·77	19th	4·21	23	0·68	14th	3·13	15	0·86	10th

TABLE SHOWING RAINFALL AT CARDIFF IN EACH MONTH, DURING THE TWENTY-SEVEN YEARS, 1876—1902.

YEAR.	OCTOBER.				NOVEMBER.				DECEMBER.				YEAR.
	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall in Month. Inches.	Days on which 0·01 or more rain fell.	Greatest fall in 24 hours.	Date of greatest fall.	Rainfall per annum. Inches.
1876	3·84	17	0·62	16th	5·27	18	0·75	12th	7·13	23	0·80	17th	46·62
1877	4·89	16	1·15	24th	6.54	25	1·06	24th	3·40	25	0·88	28th	46·79
1878	5·76	18	1·09	23rd	5·76	13	0 84	9th	2·70	10	0·75	28th	45·71
1879	1·51	12	0·35	19th	0·43	8	0·18	20th	2·11	9	0·79	31st	44.79
1880	4·94	15	1 45	25th	3·67	15	0·90	15th	6·70	20	1·09	14th	38·85
1881	3·23	13	0·72	22nd	4·98	23	0·65	26th	4·50	45	1·77	7th	41·62
1882	8·33	23	1·64	23rd	6·26	21	0 90	7th	4·86	25	0·73	31st	56·60
1883	4·23	17	0·61	15th	6·38	24	0·80	21st	1·92	17	0·57	10th	38·78
1884	1·01	17	0·35	8th	2·12	16	0·47	30th	5·87	20	0·68	5th	36·89
1885	5·59	22	1·60	22nd	5·47	16	1·11	27th	1·74	17	0·05	5th	40·99
1886	5·09	21	0·87	15th	5·39	21	1·03	5th	6·64	21	1·33	26th	48·11
1887	2·80	13	1·14	29th	3·48	21	0·69	3rd	3·46	20	0·75	12th	29·79
1888	1·74	11	0·52	28th	7·04	26	1·13	12th	3.61	16	0·88	27th	38·18
1889	3·77	25	0·48	8th	1·87	12	0·75	24th	2·40	14	0·80	21st	31·38
1890	1·92	16	0·41	7th	3·89	20	0 67	6th	0·80	4	0·33	18th	29·23
1891	7·12	22	1 32	18th	3·91	15	0·74	28th	6·19	19	0·78	30th	42·34
1892	2·64	15	0·51	27th	3·25	18	0·66	4th	2·23	12	0·62	1st	22·63
1893	5·98	21	1·29	4th	2·30	13	0·58	1st	4·18	19	0·94	12th	33·91
1894	4·91	14	1·05	24th	4·72	20	0·83	13th	3·66	20	0·51	17th	41·19
1895	3·67	15	0·94	3rd	4·21	23	0·60	5th	3·45	31	0·48	17th	32·64
1896	4·65	19	0·74	5th	0·96	5	0 60	15th	6·41	22	0·72	4th	35 42
1897	3·22	7	0·90	2nd	1·82	7	0·63	27th	6·06	18	1·19	7th	56·80
1898	7·30	18	1·13	17th	7·46	16	1·39	23rd	5·44	17	1·03	6th	42.07
1899	2·34	12	0·60	27th	3·29	11	0 95	9th	3·69	19	0·86	28th	32·75
1900	5·79	21	1·06	29th	4·99	22	0·71	24th	6·55	26	1·06	30th	41·90
1901	2·64	21	0·37	1st	1·50	8	0·51	11th	7·15	21	0·99	7th & 28th	36·27
1902	3·88	21	0·96	21st	4·97	20	1·30	8th	3·95	18	0·83	28th	36·41

COUNTY BOROUGH OF CARDIFF.

DEATHS FROM SPECIFIED CAUSES AT ALL AGES, AND AT SIX GROUPS OF AGES,

During the Year ending December 27th, 1902. *Estimated Population*, 168,909.

Classes.	Causes of Death.	<1 to 1		1 to 5		5 to 15		15 to 25		25 to 65		65 and upwards.		All Ages.			Rate per 1,000 living.
	All Causes.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total.	
	Measles	21	12	59	80	4	5	1	1	1	..	..	..	85	99	184	1·08
	Scarlet Fever	1	1	14	11	4	5	..	..	..	..	..	..	19	17	36	0·21
	Epidemic Influenza	..	1	..	..	..	..	1	..	3	3	1	2	5	6	11	0·06
	Whooping Cough	20	28	28	29	..	3	..	..	..	..	..	..	48	57	105	0·56
	Diphtheria, Membranous Croup	..	1	2	25	28	15	16	..	..	1	..	..	42	46	88	0·52
	Enteric Fever	..	..	..	..	..	1	1	1	3	2	..	..	5	4	9	0·05
	Diarrhœa Dysentery	18	9	8	6	..	..	..	..	..	..	2	1	18	16	34	0·20
	Epidemic or Zymotic Enteritis	8	10	..	2	..	..	..	..	..	..	..	..	8	18	21	0·12
	Parotitis	..	..	1	..	..	..	..	..	..	1	..	..	1	..	1	0·00
	Tetanus	..	..	..	1	..	..	..	..	..	..	..	..	..	1	1	0·00
	Syphilis	4	3	..	..	..	..	..	..	2	2	..	..	6	5	11	0·06
	Gonorrhœa	..	..	..	..	..	..	..	..	3	..	1	..	4	..	4	0·02
	Erysipelas	..	..	..	..	1	..	..	..	..	2	..	..	..	3	3	0·01
	Puerperal Fever	..	..	..	..	..	..	3	..	4	..	..	..	7	7	0·04	
	Pyæmia, Septicæmia	..	2	..	..	..	1	..	1	..	1	1	..	1	5	6	0·03
	Other Allied Diseases	1	3	..	..	1	..	..	..	2	..	..	..	4	5	9	0·05
	Malarial Fever	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	0·00
	Rheumatic Fever	..	..	..	..	1	3	1	1	2	2	..	..	4	6	10	0·06
	Tuberculosis of Brain or Meninges, Acute Hydrocephalus	2	5	9	7	4	4	1	1	2	2	..	..	17	19	36	0·21
	Tuberculosis of Lungs, Phthisis, Phthisis Pulmonalis	..	..	1	2	4	7	19	21	92	68	..	..	120	99	219	1·29
	Tuberculosis of Intestines, Tabes Mesenterica	16	8	6	3	1	2	2	2	1	..	..	..	26	15	41	0·24
	General Tuberculosis, Tubercular Disease of undefined position	6	6	3	3	1	2	1	3	1	1	..	..	12	15	27	0·16
	Other forms of Tuberculosis, Scrofula	..	..	1	1	..	2	1	1	..	..	..	..	2	4	6	0·03
	Acute Alcoholism, Delirium Tremens	..	..	..	..	..	..	..	..	1	..	..	..	..	1	1	0·00
	Chronic Alcoholism	..	..	..	..	..	..	..	..	3	..	..	..	3	..	3	0·01
	Osteo-arthritis, Rheumatoid Arthritis	..	..	..	..	1	..	1	..	6	..	1	..	2	7	9	0·05
	Cancer	..	..	..	..	..	..	..	..	98	47	11	19	47	67	114	0·67
	Diabetes Mellitus	..	..	..	..	..	..	..	..	3	2	..	1	3	3	6	0·03
	Purpura Hæmorrhagica	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	0·00
	Anæmia, Leucocythæmia	..	..	..	..	..	1	..	2	3	1	..	..	4	3	4	0·04
	Lymphadenoma, Hodgkin's Disease	..	..	..	..	..	..	..	..	1	..	..	..	1	1	2	0·01
	Premature Birth	47	41	..	..	..	..	..	..	..	..	..	..	47	41	88	0·52
	Injury at Birth	3	..	..	..	..	..	..	..	..	..	..	..	3	..	3	0·01
	Debility at Birth	26	24	..	..	..	..	..	..	..	..	..	..	26	24	50	0·29
	Atelectasis	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	0·00
	Congenital Defects	5	4	1	..	..	..	..	..	..	..	..	..	6	4	10	0·05
	Atrophy, Debility, Marasmus	37	22	13	3	..	..	..	..	2	2	..	1	40	28	68	0·04
	Dentition	5	3	2	3	..	..	..	..	..	..	..	..	7	6	13	0·07
	Rickets	4	1	2	3	..	..	..	..	..	..	..	..	6	4	10	0·05
	Old Age, Senile Decay	..	..	..	..	..	..	..	..	4	4	45	50	49	54	103	0·60
	Convulsions	47	44	6	2	1	2	1	..	..	1	..	..	55	49	104	0·61
	Meningitis	8	2	7	3	5	..	2	..	2	..	1	..	25	5	30	0·17
	Encephalitis	..	..	..	..	..	..	..	..	2	..	..	..	2	..	2	0·01
	Apoplexy	..	..	..	..	1	..	..	..	2	1	..	..	3	1	4	0·02
	Softening of Brain	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	0·00
	Hemiplegia, Brain Paralysis	..	..	..	..	1	1	..	..	5	5	4	3	10	9	19	0·11
	General Paralysis of Insane	..	..	..	..	..	..	..	..	2	..	..	..	2	..	2	0·01
	Other forms of Insanity	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	0·00
	Chorea	..	..	..	..	1	..	..	..	..	..	..	..	..	1	1	0·00
	Cerebral Tumour	..	..	..	..	..	..	..	..	2	..	..	..	2	..	2	0·01
	Epilepsy	..	..	..	..	..	1	3	..	3	2	..	..	4	3	7	0·04
	Laryngismus Stridulus	..	1	1	1	..	..	..	..	..	..	..	..	1	2	3	0·01
	Locomotor Ataxy	..	..	..	..	..	..	..	..	1	..	..	..	1	1	2	0·01
	Paraplegia, Disease of Spinal Cord	1	3	..	1	..	1	2	..	3	2	4	..	10	7	17	0·10
	Other and ill-defined Diseases of Brain or Nervous System	..	..	..	..	1	1	2	..	3	3	1	1	7	5	12	0·07
	Otitis, Otorrhœa	..	..	1	..	..	..	..	..	2	1	..	1	3	2	5	0·02
	Pericarditis	..	..	..	..	..	2	..	..	..	..	..	..	..	2	2	0·01
	Endocarditis, Valvular Diseases of the Heart	4	5	1	2	2	2	4	5	50	46	28	20	89	80	169	1·00
	Angina Pectoris	..	..	..	..	..	..	..	..	1	..	1	1	2	1	3	0·01
	Senile Gangrene	..	..	..	..	..	..	..	..	..	1	..	2	1	2	3	0·01
	Embolism, Thrombosis	..	1	..	..	..	..	..	..	3	1	..	..	3	2	5	0·02
	Phlebitis	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	0·00
	Other and ill-defined Diseases of Heart and Circulatory System	2	2	1	..	1	1	..	..	20	27	11	13	35	43	78	0·46
	Laryngitis	1	..	2	..	2	..	..	..	3	2	..	..	8	2	10	0·06
	Croup	..	..	3	..	..	..	..	..	..	..	..	..	3	..	3	0·01
	Other Diseases of Larynx and Trachea	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	0·00
	Acute Bronchitis	42	26	13	7	..	2	1	..	3	3	3	2	62	40	102	0·60
	Chronic Bronchitis	..	..	..	..	..	..	1	..	23	13	33	33	58	59	119	0·68
	Lobar, Croupous, Acute Pleuro-Pneumonia	2	..	3	2	1	3	..	..	13	3	..	..	21	6	27	0·16
	Lobular, Catarrhal, Broncho-Pneumonia	33	15	26	24	1	2	2	1	6	6	1	3	69	51	120	0·71
	Pneumonia, form not stated	17	7	9	4	2	..	1	1	41	13	7	5	77	30	107	0·63
	Emphysema, Asthma	..	..	..	..	..	1	..	..	2	2	2	2	4	5	8	0·04
	Pleurisy	..	1	..	..	..	..	2	..	4	3	1	..	7	4	11	0·06
	Other and ill-defined Diseases of Respiratory System	2	..	1	..	..	..	..	..	4	1	1	..	7	2	9	0·05
	Diseases of Mouth and Annexa	..	..	2	..	2	..	..	..	1	..	..	..	2	3	5	0·02
	Diseases of Pharynx	..	..	..	..	..	..	..	..	1	1	..	..	1	1	2	0·01
	Ulcer of Stomach and Duodenum	..	..	..	..	1	..	2	2	5	..	3	..	9	11	13	0·07
	Other Diseases of Stomach	17	7	3	..	1	..	..	..	4	4	1	1	25	12	37	0·22
	Enteritis	18	14	1	4	1	..	1	..	3	..	1	1	25	19	44	0·26
	Appendicitis	..	..	..	..	..	..	1	..	1	..	1	..	2	..	2	0·01
	Obstruction of Intestine	4	..	..	..	..	..	1	..	5	3	6	1	16	4	20	0·11
	Other Diseases of Intestine	..	..	..	1	..	..	1	..	3	..	..	..	1	4	5	0·02
	Cirrhosis of Liver	..	..	..	..	..	..	..	..	2	6	2	1	4	7	11	0·06
	Other Diseases of Liver	1	1	..	..	..	..	..	..	2	4	2	3	3	7	10	0·05
	Peritonitis	1	2	1	..	..	1	1	1	1	2	1	1	5	7	12	0·07
	Other and ill-defined Diseases of Digestive System	1	2	..	..	..	1	..	..	3	..	..	..	5	2	7	0·04
	Diseases of Lymphatic System and Ductless Glands	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	0·00
	Acute Nephritis	1	1	..	..	1	1	2	7	4	3	1	12	9	21	0·12	
	Bright's Disease	..	..	..	..	..	..	..	..	8	7	4	4	12	11	23	0·13
	Calculus	..	..	..	..	1	..	..	..	16	13	7	4	24	17	41	0·24
	Diseases of Bladder and Prostate	..	..	..	..	..	..	..	..	1	..	..	..	1	1	2	0·00
	Other and ill-defined Diseases of Urinary System	..	..	..	..	..	..	..	..	6	2	4	..	10	2	12	0·07
		..	..	..	..	..	..	..	..	2	1	..	1	2	2	4	0·02
	Diseases of Testis and Penis	..	..	..	..	..	..	..	..	1	..	..	..	1	..	1	0·00
	Diseases of Ovaries	..	..	..	..	..	..	..	..	1	1	1	..	1	3	4	0·02
	Diseases of Uterus and Appendages	..	..	..	..	..	..	..	..	1	..	10	..	..	11	11	0·06
	Abortion, Miscarriage	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	0·00
	Puerperal Convulsions	..	..	..	..	..	..	..	..	..	..	1	..	..	1	1	0·00
	Placenta Previa, Flooding, Accidental Hæmorrhage	..	..	..	..	..	..	..	..	..	..	1	..	..	2	2	0·01
	Other Ill-defined Accidents & Diseases of Pregnancy & Childbirth	..	..	..	..	..	..	..	..	8	..	12	..	..	15	15	0·08
	Other and ill-defined Diseases of Osseous System	..	1	..	..	..	..	..	..	..	..	..	..	1	1	2	0·01
	Eczema	..	2	..	..	..	..	..	..	..	..	1	..	1	2	3	0·01
	Pemphigus	1	..	..	..	..	..	..	..	..	..	..	..	1	..	1	0·00
	Other and ill-defined Diseases of Integumentary System	1	..	..	..	..	..	..	..	..	..	..	..	1	2	3	0·01
	By Accident or Negligence	1	2	2	4	4	4	12	1	36	9	5	6	71	26	97	0·57
	Homicide	1	1	..	1	1	..	..	..	..	..	..	..	2	2	4	0·02
	Suicides, all Forms	..	..	..	..	..	..	2	..	5	3	1	..	8	3	11	0·06
	Sudden Death (cause not ascertained)	5	4	..	1	1	..	..	1	3	3	2	1	11	10	21	0·12
	Other ill-defined and not Specified Causes	4	2	..	1	..	1	..	..	3	6	1	2	8	12	20	0·11
	Totals	441	329	289	248	62	82	78	59	487	414	193	199	1,495	1,326	2,821	16·7

= 0·32

Chart Shewing death-rate per 1,000 of the population from Zymotic Diseases during the Years 1878—1902.

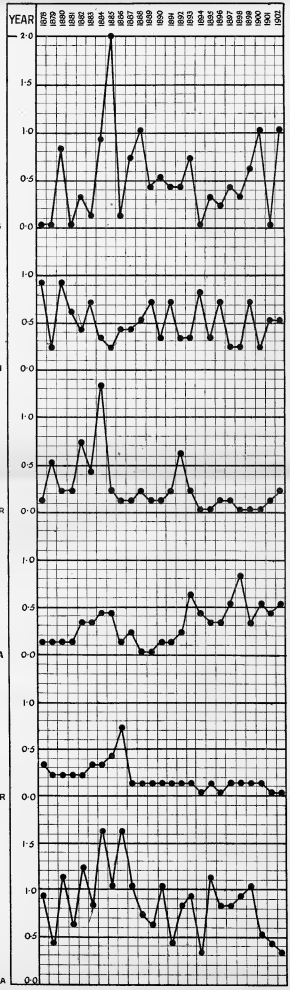
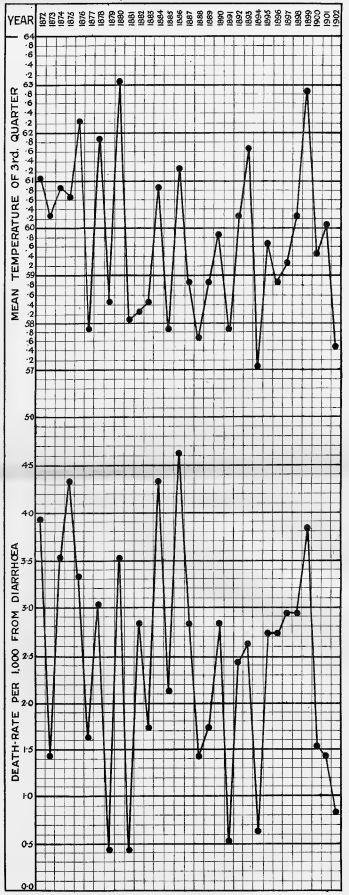
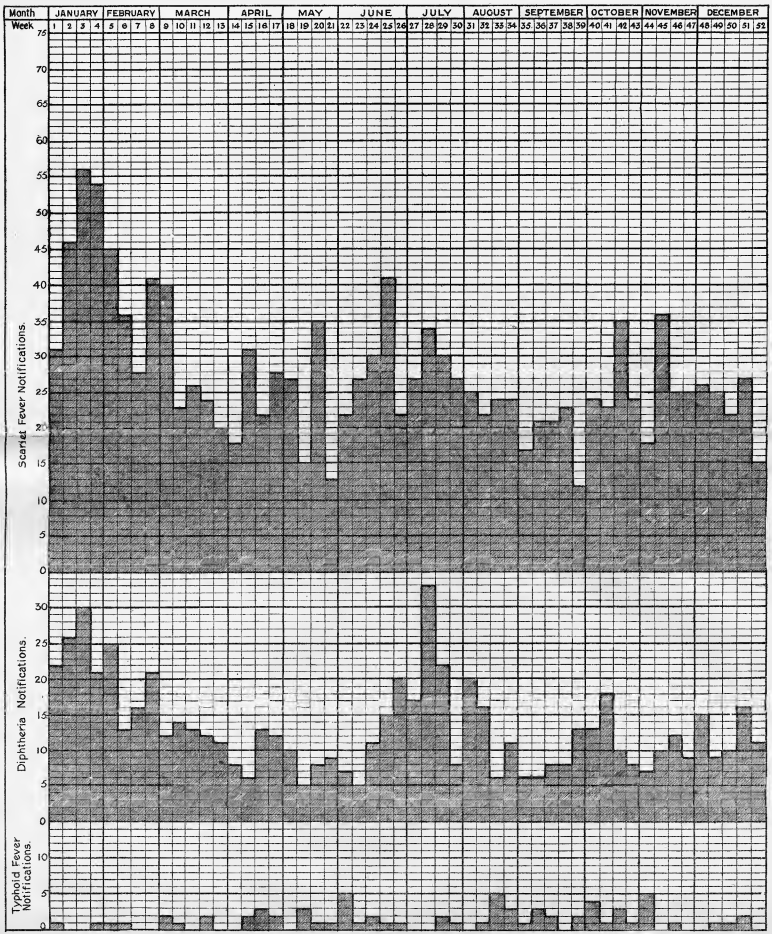


Chart shewing the influence of temperature on the Diarrhœa death-rate in Cardiff, during the Summer quarters of the Years 1872—1902.



1902

Weekly Notifications of Scarlet Fever, Diphtheria & Typhoid Fever.


Month
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
Week
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
Scarlet Fever Notifications.
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0
Diphtheria Notifications.
30 25 20 15 10 5 0
Typhoid Fever Notifications.
10 5 0

1902

Deaths from All Causes, and the Seven Chief Zymotic Diseases.